Specifications for bid, Type 1 Truck
San Ramon Valley Fire Protection District

SECTION 1

1.0 CAB AND CHASSIS

THE CAB AND CHASSIS SHALL BE A SPARTAN MOTORS FLAT FLOOR GLADIATOR, MODEL GA40M, MEDIUM FOUR DOOR, ALUMINUM TILT CAB, BUILT SPECIFICALLY FOR THE FIRE SERVICE BY A PUBLICLY HELD U.S. PARENT COMPANY, SPECIALIZING IN CHASSIS DESIGN FOR ALL FIRE SERVICE APPLICATIONS.

1.1 ONE YEAR CHASSIS WARRANTY

THE CHASSIS MANUFACTURER SHALL WARRANT TO THE ORIGINAL PURCHASER THE CUSTOM FIRE TRUCK CHASSIS FOR A PERIOD OF TWELVE (12) MONTHS WITH THE EXCEPTION OF THE ACTUAL FIRE APPARATUS CHASSIS FRAME WHICH CARRIES A LIFETIME WARRANTY. THE WARRANTY PERIOD SHALL BEGIN ON THE DATE THE VEHICLE IS DELIVERED TO THE ORIGINAL PURCHASER. THE WARRANTY MAY INCLUDE CONDITIONAL ITEMS WHICH SHALL BE LISTED IN THE DETAILED WARRANTY DOCUMENT THAT SHALL BE PROVIDED UPON REQUEST.

1.3 FRAME

THE FRAME SIDE RAILS SHALL BE CHANNEL TYPE 10-1/4" X 3-1/2" X 3/8" WITH AN INNER CHANNEL 9-7/16" X 3-1/8" X 3/8" OF 110,000 PSI HIGH STRENGTH STEEL, AN RBM OF 3,315,214 IN. LBS. AND A SECTION MODULUS OF 30.14 CU.IN.. A MINIMUM OF SEVEN (7) FULLY GUSSETED BOLTED ASSEMBLY CROSSMEMBERS SHALL BE INSTALLED USING GRADE "8" FLANGED HEAD BOLTS AND FLANGED LOCK NUTS.

THE AREA BETWEEN THE AXLE SUSPENSION HANGERS SHALL BE FREE OF ANY HOLES OR FASTENERS IN THE FLANGES. NO WELDING SHALL BE INCORPORATED IN ATTACHMENT OF COMPONENTS. ALL FRAME DIMENSIONAL CUTTING SHALL BE BY A PLASMA CUTTER. ALL RELIEF AREAS SHALL BE CUT WITH A 2" AT INTERSECTION POINTS OF CUTOUTS WITH EDGES GROUND SMOOTH TO PREVENT A STRESS FOCAL POINT.

THE FRAME SHALL CARRY A LIFETIME WARRANTY TO THE ORIGINAL PURCHASER.

1.4 FRAME PAINT

THE FRAME AND RUNNING GEAR OF THE CHASSIS SHALL PAINTED WITH A STANDARD BLACK PAINT. THE FRAME PAINT SHALL BE APPLIED BEFORE AIR LINES AND ELECTRICAL WIRING IS INSTALLED. ALL SPECIFICATION TAGS SHALL BE TAPED OFF PRIOR TO PAINT.

1.5 CHASSIS WHEELBASE

THE CHASSIS WHEELBASE SHALL BE LESS THAN 148".

1.6 OVERALL HEIGHT

THE HEIGHT OF THE VEHICLE SHALL NOT EXCEED 134" FROM THE GROUND.

1.7 FUEL TANK

THE FUEL TANK SHALL HAVE A CAPACITY OF FIFTY (50) GALLONS, MADE OF 12 GAUGE PHOSPHATE COATED STEEL WITH CHROMATE EPOXY EXTERIOR FINISH.

THE FUEL TANK SHALL BE MOUNTED UNDER THE FRAME, BEHIND THE REAR AXLE WITH A THREE PIECE STRAP HANGER ASSEMBLY WITH A "U" STRAP BOLTED MIDWAY ON THE FUEL TANK FRONT AND REAR SO THE TANK CAN BE EASILY DROPPED AND REMOVED FOR SERVICE PURPOSES. STRAP MOUNTING STUDS THROUGH THE RAIL, HIDDEN BEHIND THE BODY SHALL NOT BE ACCEPTABLE.

THE TANK SHALL HAVE VENT PORT TO FACILITATE RAPID FILLING WITHOUT "BLOW-BACK". A ROLL OVER BALL CHECK VENT SHALL BE INSTALLED.

DUAL DRAW TUBES AND DUAL SENDER PORTS SHALL BE INSTALLED. 2" NPT FILL PORTS SHALL BE AVAILABLE FOR RIGHT **AND** LEFT HAND FILL. A 1/2" NPT DRAIN PLUG SHALL BE CENTERED IN THE BOTTOM OF THE TANK.

STEEL WIRE BRAID REINFORCED RUBBER SUPPLY AND RETURN HOSES WITH REUSABLE FITTINGS SHALL BE INSTALLED TANK TO ENGINE.

1.8 FRONT BUMPER

THE ONE PIECE, POLISHED STAINLESS STEEL FRONT BUMPER SHALL BE PROVIDED. THE BUMPER SHALL BE 12" HIGH, TWO (2) RIB WRAP-AROUND TYPE.

THE BUMPER SHALL BE EXTENDED 6" AHEAD OF THE CAB.

1.9 FRONT BUMPER APRON

A 3/16" BRIGHT ALUMINUM TREAD PLATE APRON SHALL BE INSTALLED BETWEEN THE BUMPER AND THE FRONT FACE OF THE CAB. STAINLESS STEEL BOLTS SHALL BE USED TO ATTACH THE APRON TO THE BUMPER FLANGE.

1.10 CHROME PLATED TOW EYES

TWO CHROME PLATED TOW EYES SHALL BE INSTALLED BELOW THE BUMPER. THE EYES SHALL BE FABRICATED FROM 3/4" THICK #1020 ASMT-A36 HOT ROLLED STEEL. THE INSIDE DIAMETER OF THE EYE SHALL BE 2.00". BOTH INTERIOR AND EXTERIOR EDGES SHALL BE CHAMFERED.

1.11 AIR HORNS MOUNTED IN A SIX 6" BUMPER EXTENSION

TWO (2) GROVER STUTTERTONE AIR HORNS SHALL BE RECESSED IN THE SIX (6") FRONT BUMPER EXTENSION. BOTH AIR HORNS SHALL BE MOUNTED OUTBOARD OF THE FRAME RAILS ON THE LEFT HAND SIDE OF THE BUMPER. A 3/8" AIR LINE "TEED" EQUAL DISTANCE FROM EACH HORN SHALL BE INSTALLED.

1.12 AIR HORN ACTUATION

AIR HORNS ACTUATION SHALL BE ACCOMPLISHED BY A LANYARD INSTALLED CENTER OF ROOF OF CAB.

1.13 10" FEDERAL Q2B SIREN

A FEDERAL Q2B 10" ELECTRIC SIREN SHALL BE RECESSED IN THE CENTER OF THE FRONT BUMPER. A BEVELED HOUSING SHALL ENCOMPASS THE FRONT STATOR AND GRILLE.

SIREN SHALL BE ACTIVATED WITH WATERPROOF CLAMSHELL TYPE FOOT SWITCHES FOR THE OFFICER AND DRIVER. A SIREN-BRAKE SWITCH SHALL BE INSTALLED IN THE SWITCH PANEL.

SIREN SHALL BE ACTIVATED ONLY WITH MASTER WARNING SWITCH IN ON POSITION.

1.14 WHELEN ELECTRIC SIREN

WHELEN ELECTRIC SIREN SHALL BE MOUNTED OUTBOARD OF FRAME RAIL ON RIGHT SIDE OF BUMPER.

1.14 FRONT AXLE

THE FRONT AXLE SHALL BE AN ARVINMERITOR MFS-21 WITH A 3.74" DROP AND A 71.00" KPI. IT SHALL HAVE A CAPACITY OF 21,500 LBS. GAWR.

THE SPRINGS SHALL BE ELLIPTICAL TYPE, NINE (9) LEAF, 54" LONG, 4" WIDE WITH A MILITARY DOUBLE WRAPPED FRONT EYE. BOTH SPRING EYES SHALL HAVE A CASE HARDENED THREADED BUSHING INSTALLED WITH LUBRICATION COUNTERBORE AND LUBRICATION LAND OFF CROSSBORE WITH GREASE FITTING. THE SPRING CAPACITY SHALL MEET OR EXCEED THE CAPACITY OF THE FRONT AXLE.

THE HYDRAULIC POWER ASSIST STEERING GEAR SHALL BE A TRW TAS-65 WITH A HYDRAULIC POWER ASSIST CYLINDER. A VICKERS HYDRAULIC POWER STEERING PUMP SHALL BE GEAR DRIVEN FROM THE ENGINE. THE STEERING RATIO SHALL BE 20.4:1 AND HAVE 5.4 TURNS STOP TO STOP.

1.15 FRONT AXLE CRAMP ANGLE

THE HUB PILOTED, MFS MODEL FRONT AXLE CRAMP ANGLE SHALL BE 48 DEGREES TO THE LEFT AND A MINIMUM OF 44 DEGREES TURNING TO THE RIGHT, WHEN USING THE 425/65R 22.5 FRONT TIRES.

1.16 FRONT TIRES

THE FRONT TIRES SHALL BE GOODYEAR 425/65R 22.5 20 PLY "L" TUBELESS RADIAL G-286 HIGHWAY TREAD WITH 22.5 X 12.25 TEN (10) STUD DISC WHEELS. THE TIRES AND WHEELS SHALL BE RATED AT 21,500 LBS.

1.17 ALUMINUM FRONT WHEELS

THE FRONT WHEELS SHALL BE HUB PILOTED, POLISHED ALUMINUM 10 STUD DISC 22.5 X 12.25, COMPLETE WITH BRIGHT NUT COVERS AND HUB CAPS.

1.18 OIL LUBRICATED FRONT WHEEL BEARINGS

THE FRONT AXLE WHEEL BEARINGS SHALL BE OIL LUBRICATED WITH AN OIL LEVEL VISUAL INSPECTION WINDOW.

1.19 FRONT SHOCK ABSORBERS

TWO (2) BILSTEIN MONOTUBULAR DESIGN, NITROGEN GAS CHARGED SHOCK ABSORBERS SHALL BE PART OF THE FRONT AXLE SUSPENSION. BILSTEIN SHALL WARRANTY THE SHOCK FOR A PERIOD OF FIVE (5) YEARS.

1.20 ADDITIONAL POWER STEERING PUMP

AN ADDITIONAL POWER STEERING PUMP SHALL BE INSTALLED TO PROVIDE POWER ASSIST FOR THE TILLER STEERING AXLE.

1.21 STEERING RESERVOIR

A NINE (9) QUART FLUID RESERVOIR SHALL BE FURNISHED FOR THE POWER STEERING SYSTEM.

1.22 STEERING COLUMN AND WHEEL

THE STEERING COLUMN SHALL BE A SEVEN (7) POSITION TILT AND 2.25" TELESCOPIC TYPE WITH AN 18" STEERING WHEEL. THE STEERING WHEEL SHALL BE COVERED WITH BLACK ABSORBITE PADDING.

THE STEERING COLUMN SHALL CONTAIN A HORN BUTTON, SELF-CANCELING TURN SIGNAL SWITCH, FOUR-WAY HAZARD SWITCH AND HEAD LAMP DIMMER SWITCH ON TURN LEVER.

1.23 DISC BRAKES

THE FRONT AXLE SHALL HAVE MERITOR (ROCKWELL) ADB-1560 DISC TYPE BRAKES WITH 15" VENTED ROTORS PROVIDING A TOTAL OF 120 SQ.IN. OF BRAKING AREA AND AUTOMATIC SLACK ADJUSTERS.

1.24 FRONT MUD FLAPS

THE FRONT WHEEL WELLS SHALL HAVE MUD FLAPS INSTALLED ON THEM.

1.25 REAR AXLE

THE REAR AXLE SHALL BE A MERITOR MODEL #RS-30-185 WITH SINGLE REDUCTION GEARING AND SHALL HAVE A FIRE SERVICE RATED CAPACITY OF 31,000 LBS. GAWR.

1.26 TOP SPEED

THE TOP SPEED OF THE VEHICLE SHALL BE APPROXIMATELY 65 MPH AT GOVERNED ENGINE RPM.

1.27 REAR BRAKES

REAR BRAKES SHALL BE 16.5" X 7" "S" CAM TYPE WITH AUTOMATIC SLACK ADJUSTERS.

1.28 ABS BRAKE SYSTEM

A MERITOR "WABCO" ANTI-LOCK BRAKING SYSTEM SHALL BE INSTALLED ON THE FRONT AND REAR ARVIN MERITOR AXLES FOR SAFER VEHICLE CONTROL DURING BRAKING AND REDUCED STOPPING DISTANCE IN SKID APPLICATIONS.

SYSTEM DESIGN SHALL INCORPORATE A DIAGONAL CIRCUIT ELECTRONICALLY CONTROLLED THROUGH A SENSOR AND TONE RING ON EACH WHEEL.

A DASH MOUNTED ANTI-LOCK LAMP SHALL BE PROVIDED TO NOTIFY THE DRIVER OF A SYSTEM MALFUNCTION.

A MOMENTARY TEST SWITCH SHALL BE INSTALLED TO TEST THE SYSTEM FOR DIAGNOSTIC CODE.

1.29 REAR TIRES

THE REAR TIRES SHALL BE GOODYEAR 315/80R 22.5 20 PLY "L" TUBELESS RADIAL G291 HIGHWAY TREAD WITH 22.5 X 9.00, TEN (10) STUD DISC WHEELS. TIRES AND WHEELS SHALL BE RATED AT 32,560 LBS.

1.30 ALUMINUM REAR WHEELS

THE REAR WHEELS SHALL BE POLISHED ALUMINUM 10 STUD DISC 22.5 X 9.00, COMPLETE WITH BRIGHT NUT COVERS AND REAR AXLE HUB COVERS.

1.31 OIL LUBRICATED REAR WHEEL BEARINGS

THE REAR AXLE SHALL HAVE OIL LUBRICATED WHEEL BEARINGS.

1.32 REAR SUSPENSION

THE REAR SUSPENSION SHALL BE A VARI-RATE, CAPTIVE SLIPPER TYPE, WITH 57.5" X 3" SPRINGS. ONE (1) ADJUSTABLE AND ONE (1) FIXED TORQUE ROD SHALL BE PROVIDED.

THE SPRING CAPACITY MUST MEET OR EXCEED THE CAPACITY OF THE REAR AXLE.

1.33 STAINLESS STEEL WHEEL TRIM KIT

THE FRONT AND REAR WHEELS SHALL HAVE STAINLESS STEEL LUG NUT COVERS. THE FRONT AXLES SHALL BE COVERED WITH STAINLESS STEEL BABY MOONS WITH HOLE TO VIEW OIL SEAL WINDOW. THE REAR AXLES SHALL BE COVERED WITH FOAM MOUNTED STAINLESS STEEL HIGH HATS.

THE LUG NUT COVERS, BABY MOONS AND HIGH HATS SHALL BE AMERICAN MADE REAL WHEELS BRAND MIRROR FINISH, 304L GRADE, NON-CORROSIVE STAINLESS STEEL MEETING D.O.T. CERTIFICATION STANDARDS. ALL STAINLESS STEEL BABY MOONS AND HIGH HATS SHALL CARRY A LIFETIME WARRANTY.

1.34 SINGLE REAR AXLE AIR BRAKE SYSTEM

A RAPID BUILD-UP AIR BRAKE SYSTEM SHALL BE PROVIDED. IT SHALL INCLUDE THREE (3) AIR RESERVOIRS WITH A TOTAL OF 4,136 CU.IN. AIR CAPACITY.

A PARKING BRAKE ON THE SPRING ACTUATED CHAMBERS ON THE REAR AXLE BRAKES WITH A PUSH-PULL VALVE ON THE INSTRUMENT PANEL SHALL BE INSTALLED.

THE REAR AXLE SPRING BRAKES ARE TO AUTOMATICALLY APPLY IN CASE OF AIR PRESSURE DROP BELOW 60 PSI WITH A MECHANICAL MEANS FOR RELEASING THE SPRING BRAKE CHAMBERS.

1.35 FRONT WHEEL SERVICE BRAKE LOCK-UP SYSTEM

A FRONT WHEEL SERVICE BRAKE LOCK-UP SYSTEM SHALL BE INSTALLED WHICH WILL APPLY BOTH THE FRONT AIR AND REAR SPRING BRAKES UPON APPLICATION OF THE PP-1 PUSH-PULL VALVE IN THE CAB.

1.36 AIR DRYER

A WABCO 1200 SYSTEM SAVER SPIN-ON DESICCANT AIR DRYER WITH AN AUTOMATIC HEATED MOISTURE EJECTOR SHALL BE INSTALLED IN THE AIR BRAKE SYSTEM.

1.37 MANUAL DRAINS ON AIR TANKS

MANUAL DRAINS SHALL BE INSTALLED ON ALL RESERVOIRS OF THE AIR BRAKE SYSTEM. STAINLESS STEEL PULL CABLES SHALL BE FURNISHED.

1.38 NYLON AIR LINE TUBING

A DUAL AIR SYSTEM PLUMBED WITH COLOR CODED REINFORCED NYLON TUBING AIR LINES SHALL BE INSTALLED. THE PRIMARY (REAR) BRAKE LINE SHALL BE GREEN, THE SECONDARY (FRONT) BRAKE LINE RED, THE PARKING BRAKE LINE ORANGE AND THE AUXILIARY (OUTLET) WILL BE BLUE.

BRASS COMPRESSION TYPE FITTINGS SHALL BE USED ON THE NYLON TUBING. ALL DROP HOSES SHALL BE FIBER REINFORCED NEOPRENE COVERED HOSES.

1.39 ADDITIONAL AIR RESERVOIR

AN ADDITIONAL 1200 CU.IN. AIR RESERVOIR SHALL BE INSTALLED AND ISOLATED TO PREVENT DEPLETION OF THE AIR TO THE AIR BRAKE SYSTEM AND TO ACT AS A SUPPLY TANK FOR OPERATING AIR EQUIPMENT. IT SHALL BE PLUMBED WITH A 90 PSI PRESSURE PROTECTION VALVE ON THE RESERVOIR SUPPLY SIDE.

1.40 ADDITIONAL AIR RESERVOIR

AN ADDITIONAL 2068 CU.IN. AIR RESERVOIR SHALL BE INSTALLED. IT SHALL BE ISOLATED AND BE PLUMBED WITH A 90 PSI PRESSURE PROTECTION VALVE ON THE RESERVOIR SUPPLY SIDE.

1.41 AIR DISCHARGE CONNECTION

A QUICK RELEASE AIR DISCHARGE FEMALE CONNECTOR SHALL BE INSTALLED IN THE CAB LEFT AND RIGHT STEP AREA FOR THE USE OF AUXILIARY AIR TOOLS. THE AIR DISCHARGE CONNECTOR SHALL BE COMPATIBLE WITH EITHER A MILTON 787, PARKER HANNIFIN B13 OR MEYERS 54-410 CONNECTOR.

1.42 AIR COMPRESSOR

THE AIR COMPRESSOR ON THE ENGINE SHALL BE A BENDIX TU-FLO 750 RATED AS BEING CAPABLE OF PRODUCING A MINIMUM OF 16.5 CFM. IT SHALL BE GEAR DRIVEN, ENGINE OIL PRESSURE LUBRICATED AND COOLED BY THE ENGINE COOLING SYSTEM.

1.43 ENGINE

A DETROIT DIESEL SERIES 60 12.7 LITER, TURBOCHARGED, CHARGE AIR COOLED ENGINE SHALL BE PROVIDED.

TYPE:
IN-LINE SIX (6) CYLINDER, 4 CYCLE

HORSEPOWER:
500 @ 2100 RPM

TORQUE:
1650 LB.FT. @ 1200 RPM

DISPLACEMENT:
774 CU.IN.

GOVERNOR:
DDEC ELECTRONIC

A WIRING HARNESS WITH CONNECTORS EXTENDING TO THE PUMP PANEL AREA WITH CIRCUITS PROVIDED FOR A HAND THROTTLE, FIRE COMMANDER, MULTIPLEXED GAUGES AND HIGH IDLE ACTUATION (AS OPTIONALLY REQUIRED FOR THIS APPARATUS) SHALL BE PROVIDED.

A PRIMARY FULL FLOW, AND SECONDARY FULL FLOW, SPIN-ON OIL FILTER SHALL BE INSTALLED AS PART OF THE ENGINE'S LUBRICATION SYSTEM. #PF2100.

1.45 RACOR FILTER W/ LAMP AND ALARM

A RACOR B32002 FILTER SHALL BE INSTALLED IN PLACE OF THE STANDARD DETROIT DIESEL FUEL WATER SEPARATOR WITH AN INSTRUMENT PANEL LAMP AND AUDIBLE ALARM WHICH INDICATES WHEN WATER IS PRESENT IN THE FUEL-WATER SEPARATOR.

1.46 FUEL SHUT-OFF VALVE

A FUEL SHUT-OFF VALVE SHALL BE INSTALLED IN THE FUEL DRAW LINE AT THE PRIMARY FUEL FILTER TO ALLOW THE FUEL FILTER TO BE CHANGED WITHOUT LOSS OF FUEL TO THE FUEL PUMP.

1.47 JACOBS ENGINE BRAKE

A JACOBS ENGINE COMPRESSION BRAKE, FOR THE SIX (6) CYLINDER ENGINE, WITH BRAKE LIGHT ACTUATION AND CUTOUT RELAY WHEN IN PUMP MODE SHALL BE INSTALLED. THE ENGINE BRAKE WILL ACTIVATE UPON RELEASE OF ACCELERATOR WHEN IN OPERATION MODE.

A DASH MOUNTED SWITCH WITH "ON/OFF" AND "HIGH"/MED/"LOW" FUNCTIONS SHALL BE INSTALLED.

1.48 EXHAUST SYSTEM

THE EXHAUST SYSTEM SHALL BE INSTALLED UNDER THE FRAME WITH THE DISCHARGE TO THE RIGHT SIDE FORWARD OF THE REAR TIRES.

A MUFFLER AND .065 WALL ALUMINIZED STEEL EXHAUST TUBING SUPPORTED BY BOLTED ON FRAME BRACKETS SHALL BE INSTALLED.

STAINLESS STEEL FLEX TUBING IS TO BE INSTALLED BETWEEN EXHAUST PIPE AND MUFFLER. SYSTEM JOINTS SHALL BE CONNECTED WITH LAPPING BAND CLAMPS.

1.49 PROVISIONS FOR NEIDERMAN EXHAUST EXTRACTION SYSTEM

THE EXHAUST SYSTEM SHALL BE MODIFIED TO ACCEPT A NEIDERMAN 45 DEGREE EXHAUST EXTRACTION SYSTEM.

1.50 AIR CLEANER

THE AIR CLEANER SHALL BE FARR #62891-001 DRY TYPE WITH A REPLACEABLE ELEMENT, IT SHALL HAVE AN OUTSIDE AIR INTAKE WITH AN EMBER SEPARATOR FILTER AND AN INDICATOR LIGHT IN THE WARNING LIGHT CLUSTER TO SHOW WHEN THE AIR CLEANER ELEMENT REQUIRES REPLACEMENT.

1.51 COOLING SYSTEM

THE COOLING SYSTEM SHALL HAVE SUFFICIENT CAPACITY TO KEEP THE ENGINE PROPERLY COOLED UNDER ALL CONDITIONS OF ROAD AND PUMPING OPERATIONS. THE COOLING SYSTEM SHALL BE DE-SIGNED TO MEET OR EXCEED THE ENGINE AND TRANSMISSION MANUFACTURER AND EPA REQUIREMENTS.

1.51.1 RADIATOR

THE RADIATOR SHALL BE A CROSS-FLOW DESIGN CONSTRUCTED COMPLETELY OF ALUMINUM WITH WELD-ED SIDE TANKS. THE RADIATOR SHALL BE LOCATED BELOW THE CHARGE AIR COOLER TO ALLOW A SINGLE DEPTH CORE AND EFFICIENT COOLING SYSTEM. THE RADIATOR SHALL HAVE A COMPLETE DE-AERATION SYSTEM CAPABLE OF REMOVING ENTRAINED AIR FROM THE SYSTEM. THE RADIATOR SHALL ALSO BE EQUIPPED WITH A DRAIN COCK TO DRAIN THE COOLANT FOR SERVICEABILITY. THE COOLING SYSTEM SHALL BE EQUIPPED WITH A SEPARATE TANK THAT ALLOWS THE SYSTEM TO BE FILLED. (THE SYSTEM MAY BE FILLED AND CHECKED THROUGH THE GRILLE ON SOME MODELS). THE TANK WILL INCLUDE A LOW COOLANT PROBE AND A SIGHT GLASS TO MONITOR THE COOLANT LEVEL.

THE COOLING PACKAGE SHALL HAVE EXTENDED LIFE COOLANT INSTALLED. THE USE OF COOLANT ADDITIVES WILL NOT BE ALLOWED AS THIS IS PART OF THE EXTENDED LIFE

COOLANT MAKEUP. ENGINES EQUIPPED WITH COOLANT FILTERS WILL BE SUPPLIED WITHOUT COOLANT ADDITIVES.

ALL RADIATOR HOSES SHALL BE SILICONE WITH STAINLESS STEEL CONSTANT TORQUE CLAMPS.

1.51.2 CHARGE AIR COOLER

THE CHARGE AIR COOLER SHALL BE A CROSS-FLOW DESIGN CONSTRUCTED COMPLETELY OF ALUMINUM WITH WELDED SIDE TANKS. THE CHARGE AIR COOLER SHALL BE LOCATED ABOVE THE RADIATOR TO ALLOW A SINGLE DEPTH CORE AND EFFICIENT COOLING SYSTEM.

THE CHARGE AIR SYSTEM SHALL BE INSTALLED WITH SILICONE HUMP HOSES AND STAINLESS STEEL "T" STYLE CLAMPS.

1.52 COOLING SYSTEM FAN

THE ENGINE COOLING SYSTEM SHALL INCORPORATE A HEAVY DUTY FAN, INSTALLED ON THE ENGINE AND INCLUDE A SHROUD. RE-CIRCULATION SHIELDS SHALL BE INSTALLED TO ENSURE THAT AIR WHICH HAS PASSED THROUGH THE RADIATOR IS NOT DRAWN THROUGH IT AGAIN.

1.53 SILICONE HEATER HOSE

ALL HEATER SYSTEM HOSES SHALL BE SILICONE WITH A STAINLESS STEEL CONSTANT TORQUE CLAMP APPROVED FOR USE WITH SILICONE HOSE.

1.54 COOLANT HEATER

A 1500 WATT, 120 VOLT ENGINE COOLANT HEATER WITH AUTOMATIC THERMOSTAT SHALL BE INSTALLED.

1.55 TRANSMISSION

THE TRANSMISSION SHALL BE AN ALLISON 4000 EVP FIVE (5) SPEED AUTOMATIC WITH ELECTRONIC CONTROLS.

THE TRANSMISSION WILL HAVE TWO (2) 10-BOLT PTO PADS, ONE (1) AT THE 8-O'CLOCK POSITION AND THE OTHER AT THE 1-O'CLOCK POSITION.

THE TRANSMISSION SHALL BE EQUIPPED WITH AN AIR TO OIL TRANSMISSION COOLER LOCATED BELOW THE RADIATOR ALLOWING A SINGLE DEPTH CORE AND EFFICIENT COOLING PACKAGE. THE TRANSMISSION COOLER SHALL BE MOUNTED IN
A MANNER TO ALLOW MAXIMUM APPROACH ANGLE BY NOT PROTRUDING BELOW THE FRAME MORE THAN AN INCH. THE TRANSMISSION COOLER SHALL BE CONSTRUCTED COMPLETELY OF ALUMINUM WITH WELDED SIDE TANKS. THE TRANSMISSION SHALL HAVE TWO (2) INTERNAL OIL FILTERS.

FOURTH GEAR HOLD-IN RANGE MAY BE ACCOMPLISHED THROUGH WIRING FOR A PUMPING APPLICATION.

THE TRANSMISSION GEAR RATIOS SHALL BE:
1ST 3.51:1
2ND 1.91:1
3RD 1.43:1
4TH 1.00:1
5TH 0.74:1
REV 4.80

1.56 TRANSMISSION TOUCH PAD

AN ALLISON PRESSURE SENSITIVE RANGE SELECTOR TOUCH PAD SHALL BE PROVIDED AND LOCATED TO THE RIGHT OF THE DRIVER WITHIN CLEAR VIEW AND REACH.

1.57 TRANSMISSION MODE

THE TRANSMISSION, UPON START-UP, WILL SELECT FOUR (4) SPEED OPERATION. BY PRESSING THE "MODE" SWITCH ON THE SHIFT PAD (MODE ON) PROVIDES FIVE (5) SPEED OVERDRIVE.

1.58 DRIVE LINES

ALL DRIVE LINES SHALL BE 1810 HEAVY DUTY SERIES WITH "GLIDE COAT" SPLINES ON ALL SLIP SHAFTS.

1.59 POWER TAKE OFF (PTO)

A TEN (10) BOLT STANDARD DUTY CLUTCHED DRIVE ENGINE DRIVEN PTO, FOR THE HD TRANSMISSION, SHALL BE INSTALLED. THE PTO RATIO SHALL BE ____ % AT ____ LB. FT. OF TORQUE. THIS PTO SHALL BE INSTALLED ON THE ____ ONE O'CLOCK POSITION SIDE OF THE TRANSMISSION.

BRAND ____

MODEL #___

1.60 POWER TAKE OFF (PTO)

A TEN (10) BOLT HEAVY DUTY CLUTCHED DRIVE ENGINE DRIVEN PTO, FOR THE HD TRANSMISSION, SHALL BE INSTALLED. THE PTO RATIO SHALL BE ____ % AT ____ LB. FT. OF TORQUE. THIS PTO SHALL BE INSTALLED IN THE EIGHT O'CLOCK POSITION ON THE SIDE OF THE TRANSMISSION.

BRAND ____

MODEL #____

1.61 FLOOR NOTCH

A RAISED TUNNEL SHALL BE INSTALLED IN THE FLOOR OF THE CREW CAB AREA IF REQUIRED FOR THE PTO DRIVELINE.

1.63 REAR-MOUNT PUMP PANEL HARNESS FIRE COMMANDER DDEC

AN APPARATUS INTERFACE WIRING HARNESS FOR THE DETROIT DIESEL ENGINE WILL BE SUPPLIED WITH THE CHASSIS. THE HARNESS SHALL HAVE A CONNECTOR TO CONNECT TO THE CHASSIS HARNESS DROP OUT AT THE BACK OF THE CAB. THE HARNESS SHALL BE FIFTEEN FEET (15') LONG FOR A REAR-MOUNT PUMP PANEL. THE HARNESS SHALL CONTAIN CIRCUITS FOR A FIRE COMMANDER PSG CONTROL HEAD, HAND THROTTLE, PRESSURE TRANSDUCER, HIGH IDLE AND 3 IN 1 MULTIPLEXED GAUGE WHICH INCLUDES TACHOMETER, ENGINE TEMPERATURE AND ENGINE OIL PRESSURE.

1.67 APPARATUS WIRING PANEL

AN APPARATUS WIRING PANEL SHALL BE INSTALLED ON THE OFFICER SIDE BULKHEAD BELOW THE DASH AND SHALL INCLUDE EIGHT (8) OPEN CIRCUITS WITH THREE (3) 20 AMP, ONE (1) 30 AMP, THREE (3) 10 AMP AND ONE (1) 15 AMP RELAYS AND BREAKERS WITH TRIGGER WIRES RUN TO THE ROCKER SWITCH PANEL.

1.68 ELECTRICAL SYSTEM

A SINGLE STARTING SYSTEM SHALL BE INSTALLED PER NFPA 1901. THE ELECTRICAL SYSTEM SHALL BE 12 VOLT, SUPPRESSED PER SAE J551 WITH SIX (6) DOUGLAS BCI-31 950 CCA BATTERIES WITH 210 MINUTE RESERVE CAPACITY AND 3/0 WELDING TYPE DUAL PATH STARTER CABLES PER SAE J541.

ENGINE STARTER SHALL BE A DELCO REMY 12 VOLT 42MT WITH OVERCRANK AND THERMAL PROTECTION.

WIRING SHALL BE APPROPRIATE GAUGE CROSS LINK WITH 311 DEGREE F. INSULATION. ALL WIRES IN THE CHASSIS SHALL BE CIRCUIT NUMBERED AND FUNCTION CODED, IN ADDITION THE SAE WIRING WILL BE COLOR CODED. THE WIRING SHALL BE PROTECTED BY 250 DEGREE F. MINIMUM HIGH TEMPERATURE FLAME RETARDANT LOOM.

THE STARTING SYSTEM SHALL BE SUPPLIED WITH THE FOLLOWING:
ONE (1) COLE-HERSEE #2484 MASTER BATTERY SWITCH
ONE (1) COLE-HERSEE #EX26654A IGNITION SWITCH
ONE (1) STARTER BUTTON
ONE GREEN LED INDICATOR FOR BATTERY "ON".
ONE GREEN LED INDICATOR FOR IGNITION "ON".

1.69 BATTERY JUMPER STUDS

BATTERY JUMPER STUDS SHALL BE PROVIDED UNDER THE DRIVERS SIDE BATTERY BOX. THE STUDS ALLOW THE VEHICLE TO BE JUMP STARTED OR CAB TO BE RAISED IN AN EMERGENCY DUE TO BATTERY FAILURE.

1.70 INSTRUMENTATION

AN ERGONOMICALLY DESIGNED INSTRUMENT PANEL SHALL BE PROVIDED. THE INSTRUMENT PANEL SHALL CONTAIN THE FOLLOWING RED BACKLIT GAUGES AND LED INDICATORS, ALL WITHIN CLEAR VIEW OF THE DRIVER.

ONE (1) ELECTRONIC TACHOMETER WITH INTEGRAL DIGITAL HOUR METER
ONE (1) ELECTRONIC SPEEDOMETER. THE SPEEDOMETER SHALL INCLUDE A DIGITAL ODOMETER/TRIP ODOMETER
ONE (1) THREE FUNCTION GAUGE WITH FRONT AIR PRESSURE, REAR AIR PRESSURE AND FUEL LEVEL
ONE (1) FOUR FUNCTION GAUGE WITH OIL PRESSURE, COOLANT TEMPERATURE, TRANSMISSION TEMPERATURE AND VOLT METER

THE CENTER OF THE INSTRUMENT PANEL SHALL CONTAIN A CLUSTER OF INDICATOR LAMPS INFORMING THE DRIVER OF THE FOLLOWING:

RED LAMPS
LOW AIR SYSTEM ONE (1) OR TWO (2)
LOW ENGINE OIL PRESSURE
HIGH ENGINE COOLANT TEMPERATURE
HIGH TRANSMISSION TEMPERATURE
LOW COOLANT LEVEL (WITH OPTION)
AIR FILTER RESTRICTION
LOW FUEL LEVEL (ACTIVATES AT 1/4 FULL)
STOP ENGINE
HIGH OR LOW VOLTAGE
PARKING BRAKE SET

GREEN LAMPS
DIRECTIONAL LEFT AND RIGHT INDICATORS
AUXILIARY BRAKING DEVICE ACTIVE
LOW TRACTION (INDICATES WHEEL SLIP) (WITH ATC OPTION)
HIGH IDLE ACTIVE (WITH HIGH IDLE OPTION)

YELLOW
CHECK ENGINE
CHECK TRANSMISSION
ABS BRAKES
WAIT TO START (ISB/C/L ONLY)
WATER IN FUEL (WITH OPTION)

ENGINE MAINTENANCE (CUMMINS ONLY)

BLUE LAMP
HIGH BEAM HEADLIGHT ON

AUDIBLE WARNING SYSTEM FOR THE FOLLOWING:
LOW AIR SYSTEM
LOW ENGINE OIL PRESSURE
HIGH ENGINE COOLANT TEMPERATURE
HIGH TRANSMISSION TEMPERATURE
LOW COOLANT LEVEL (WITH LOW COOLANT OPTION)
HIGH AND LOW VOLTAGE
STOP ENGINE

THERMAL RESET CIRCUIT BREAKERS AND RELAYS SHALL BE INSTALLED BEHIND THE ELECTRICAL CENTER COVER.

1.71 ROCKER SWITCH CONSOLE

A THREE (3) SECTION, DOUBLE ROW SWITCH CONSOLE SHALL BE PROVIDED AND SHALL BE AN INTEGRAL PART OF THE ENGINE TUNNEL, WITH EASY SWITCH ACCESS TO BOTH THE DRIVER AND OFFICER. THE CONSOLE WILL CONSIST OF A ANGLED DRIVER'S SIDE PANEL, CENTER MAIN DOUBLE ROW PANEL, AND ANGLED OFFICER'S SIDE PANEL.

THE SWITCH CONSOLE SHALL NOT BE AN ADD ON TYPE CONSOLE.

THE DRIVER'S SIDE PANEL SHALL INCLUDE A ROCKER TYPE HEADLIGHT SWITCH WITH INSTRUMENT LAMP SLIDE DIMMER, INTERMITTENT WINDSHIELD WIPER/WASHER SWITCH, SECONDARY BRAKING DEVICE ROCKER SWITCHES.

1.72 CENTER ROCKER SWITCH PANEL

THE CENTER MAIN ROCKER SWITCH PANEL SHALL INCLUDE EIGHTEEN (18) LED BACKLIT AND LABELED ROCKER SWITCHES. THE TOP ROW OF TWELVE (12) LED BACKLIT SWITCHES AND THE BOTTOM LEFT SECTION OF SIX (6) LED BACKLIT SWITCHES SHALL BE PROVIDED. THE REMAINING BOTTOM RIGHT SECTION OF THE PANEL SHALL BE LEFT FREE TO ACCOMMODATE FLUSH MOUNTED EQUIPMENT.

1.73 OFFICER ROCKER SWITCH PANEL

THE OFFICER'S SIDE SWITCH PANEL SHALL BE A BLANK PANEL WITH NO SWITCHES TO ACCOMMODATE FLUSH MOUNTED DEVICES.

1.74 WHELEN ELECTRONIC SIREN

A WHELEN WS-295HFS2 ELECTRONIC SIREN HEAD SHALL BE PROVIDED AND INSTALLED IN THE CENTER MAIN SWITCH LOWER PANEL.

1.75 POWER AND GROUND STUDS FOR TWO-WAY RADIO

POWER AND GROUNDING STUDS SHALL BE PROVIDED AND INSTALLED BEHIND THE ELECTRICAL CENTER COVER FOR TWO-WAY RADIOS. A 40 AMP FUSE WILL BE LOCATED AT THE BATTERIES FOR CIRCUIT PROTECTION.

1.76 CLASS ONE TOTAL SYSTEM MANAGER WITH AUTO HIGH IDLE

A CLASS ONE TOTAL SYSTEM MANAGER LOAD SEQUENCING AND SHEDDING SYSTEM SHALL BE INSTALLED.

THE SEQUENCER SYSTEM SHALL BE CAPABLE OF SEQUENTIALLY ENERGIZING UP TO TWELVE (12) PRESELECTED OUTPUTS, AND CAPABLE OF SHEDDING UP TO EIGHT (8) OUTPUTS.

THE SYSTEM SHALL ALSO MONITOR THE VEHICLE'S BATTERY VOLTAGE. WHEN ELECTRICAL LOADS EXCEED THE ALTERNATOR OUTPUT OF APPROXIMATELY 12.5 VOLTS, PRE-SELECTED LOADS WILL BEGIN TO SHUT DOWN.

A LOW VOLTAGE LIGHT AND ALARM WITH AUTOMATIC HIGH IDLE ACTUATION ENABLED SHALL BE PART OF THE SYSTEM.

AN LED INDICATOR SHALL BE INSTALLED ON THE CAB DASH TO INDICATE WHEN THE LOAD SHEDDING CIRCUIT IS FUNCTIONING.

1.77 ALTERNATOR

A 320 AMP 12 VOLT LEECE NEVILLE MODEL #4890JB ALTERNATOR WITH “EXTERNAL” REGULATOR SHALL BE INSTALLED.

1.78 BATTERY CONDITIONER WITH AUTO-EJECT

A KUSSMAUL AUTO CHARGE 1200 BATTERY CONDITIONER WITH BUILT-IN ISOLATOR REGULATING EQUAL VOLTAGE TO ALL BATTERIES SHALL BE INSTALLED IN THE CAB BEHIND THE DRIVERS SEAT.

IT IS TO BE POWERED BY A WEATHER PROOF KUSSMAUL SUPER 20 AMP 120V ANTI-ARCING AUTO-EJECT RECEPTACLE WITH RED COVER.

THE RECEPTACLE SHALL BE LOCATED ON THE CAB CORNER IN FRONT OF THE DRIVER'S DOOR.

1.79 HEADLIGHTS

FOUR (4) RECTANGULAR HALOGEN HEADLAMPS WITH SEPARATE HIGH AND LOW BEAMS IN BRIGHT BEZELS SHALL BE PROVIDED. THE HEADLAMPS SHALL BE EQUIPPED WITH A "DAYTIME RUNNING" LIGHT FEATURE WHICH WILL ILLUMINATE THE HEADLIGHTS TO 80% BRILLIANCE WHEN THE IGNITION SWITCH IS IN THE "ON" POSITION AND THE PARKING BRAKE IS RELEASED.

TWO (2) ROUND SIDE TURN SIGNAL/MARKER LIGHTS SHALL BE PROVIDED ON THE FRONT CAB CORNERS.

1.80 MARKER LAMPS

FIVE I.C.C. CAB MARKER LAMPS SHALL BE INSTALLED ON THE ROOF OF THE CAB. THE LAMPS SHALL BE TEARDROP SHAPED 3.00" HIGH X 3.75" WIDE X 11.00" LONG.

1.81 FRONT WARNING LIGHTS

TWO (2) WHELEN MODEL 6E HALOGEN ROTATING WARNING LAMPS SHALL BE INSTALLED ON THE FRONT OF THE CAB.

THE LAMPS SHALL BE INSTALLED IN A POLISHED CHROME HOUSING ABOVE THE HEADLAMPS.

THE OUTER LAMPS SHALL BE LED PROGRAMMABLE DIRECTIONAL ARROW STYLE LIGHTS.

1.82 CORNERING LAMPS

TWO (2) WHELEN MC-100 ("MICRO-MAX") OR EQUIVALENT STEADY-ON CORNERING LAMPS WITH CLEAR LENSES SHALL BE PROVIDED TO ILLUMINATE THE AREA ADJACENT TO THE FRONT CORNER OF CAB WHEN THE TURN SIGNAL SWITCH IS ACTIVATED.

1.83 LIGHTBAR - CAB ROOF

A WHELEN MODEL #9301NLED 72" LIGHTBAR SHALL BE INSTALLED ON THE CAB ROOF. THE LIGHTBAR SHALL BE EQUIPPED WITH DUAL ALLEY LIGHTS, 50 WATT CLEAR FORWARD-FACING LIGHTS, ONE (1) EACH SIDE AND A CALIFORNIA REQUIRED STEADY-BURNING FORWARD-FACING LIGHT.

1.84 OPTICOM EMITTER

A 3M BRAND OPTICOM TRAFFIC PREEMPTION EMITTER SHALL BE INSTALLED IN THE LIGHTBAR. THE EMITTER SHALL BE WIRED THROUGH THE PARK BRAKE CONTROL TO DEACTIVATE WHEN THE BRAKE IS ENGAGED OR A ROCKER SWITCH LOCATED IN CENTER CONSOLE.

1.85 SIDE WARNING LIGHTS

TWO (2) WHELEN 60ROOFRR LED RED WIDE ANGLE WARNING LIGHTS SHALL BE INSTALLED ON EACH CAB SIDE OVER THE FRONT WHEELWELLS TO ACT AS INTERSECTOR LIGHTS.

1.86 ALTERNATING HEAD LAMP WARNING SYSTEM

AN ALTERNATING HIGH BEAM HEAD LAMP FLASHING SYSTEM SHALL BE INSTALLED INTO THE HIGH BEAM HEAD LAMP SYSTEM THAT WILL ALLOW THE HIGH BEAMS TO FLASH ALTERNATELY FROM LEFT TO RIGHT.

THE COMPLETED SYSTEM SHALL BE CAPABLE OF USING HIGH BEAM TO OVERRIDE FLASHING FUNCTION AND WILL FLASH HIGH BEAMS WHEN LOW BEAM HEAD LAMPS ARE SELECTED.

A ROCKER SWITCH LOCATED IN CENTER CONSOLE SHALL BE INSTALLED TO OVERRIDE FLASHING FUNCTION.

1.87 SCENE LIGHTS

TWO (2) WHELEN #810 SERIES CLEAR HALOGEN SCENE LIGHTS SHALL BE INSTALLED ON THE SIDES OF THE CAB. THE LIGHTS SHALL BE SURFACE MOUNTED ONE (1) EACH SIDE OF THE CAB. THE LIGHTS SHALL BE CONTROLLED BY SEPARATE SWITCHES ONE (1) FOR THE LEFT SIDE AND ONE (1) FOR THE RIGHT SIDE.

1.88 MAST LIGHT

A 20" HIGH MARINE TYPE MAST LIGHT #M-4582 SHALL BE FURNISHED ON THE REARMOST AREA OF THE CAB ROOF, CENTERED. THIS LIGHT WILL BE USED BY THE TILLERMAN AS A GUIDE LIGHT. THE LENS SHALL BE WHITE. THE LIGHT SHALL BE WIRED THROUGH THE HEADLIGHT SWITCH. PERKO #455-002-CAR.

1.89 BACKUP ALARM

A PRECO-MATIC #1059 DUAL FUNCTION, DUAL SOUND BACKUP ALARM SHALL BE INSTALLED AT THE REAR OF THE CHASSIS WITH AN ADJUSTABLE OUTPUT LEVEL OF NOT LESS THAN 87 DBA AND UP TO 107 DBA. THE ALARM WILL AUTOMATICALLY ACTIVATE WHEN THE TRANSMISSION IS PLACED IN REVERSE.

1.90 CLASSIC FRONT FACIA

THE FRONT CAB FASCIA SHALL BE CONSTRUCTED OF ALUMINUM, WHICH WILL ATTACH TO THE FRONT CAB SKIN AND ACT AS A FASCIA ONLY, PROVIDING NO ADDITIONAL SUPPORT FOR THE CAB ALUMINUM STRUCTURE.

THE FRONT FASCIA WILL COVER THE FRONT ALUMINUM CAB STRUCTURE FROM THE BOTTOM OF THE WINDSHIELD DOWN TO THE BOTTOM OF THE CAB. THE FRONT CAB FASCIA SHALL HAVE PROVISIONS FOR FOUR (HI/LOW BEAM) HEADLAMPS, TURN SIGNAL LAMPS AND UP TO FOUR WARNING LAMPS.

THE FRONT FASCIA SHALL ALLOW ACCESS TO CHECK AND FILL THE ENGINE OIL, POWER STEERING FLUID AND WIPER WASHER FLUID. ACCESS IS ALSO PROVIDED FOR SERVICING THE

WINDSHIELD WIPER MOTOR AND LINKAGE, EMBER SEPARATOR, HEADLAMPS, ELECTRICAL BULKHEAD CONNECTORS, TRANSMISSION ECU AND THE MULTIPLEX V-MUX CONTROL.

1.91 FLAT FLOOR MFD TILT CAB

THE CAB SHALL BE A SPARTAN MOTORS FLAT FLOOR, MFD (MEDIUM FOUR DOOR), ALUMINUM TILT CAB, CAPABLE OF SEATING SIX (6) FIREFIGHTERS.

THE CAB SHALL BE OF THE EUROSPACE INTERIOR DESIGN ALLOWING FOR EASY COMMUNICATION INSIDE THE CAB. THE CAB OVERALL LENGTH SHALL BE 128.00" WITH 54.00" FROM THE CENTERLINE OF THE FRONT AXLE TO THE BACK OF THE CAB.

THE REAR CAB WALL SHALL BE .125" THICK ALUMINUM. THE REAR FLOOR TO THE HEADLINER HEIGHT SHALL BE 55.00".

THE CAB FRONT SKIN AND FLOOR SHALL BE .190" THICK ALUMINUM. THE INSIDE WIDTH SHALL BE 90.00" AND THE FRONT FLOOR TO HEADLINER HEIGHT ABOVE THE DRIVER AND OFFICER SHALL BE 58.00".

ALL GLASS USED IN THE CAB SHALL BE AUTOMOTIVE TINT. THE WINDSHIELD SHALL HAVE A MAXIMUM OF 2890 SQ.IN. AREA AND BE OF THE WRAPAROUND DESIGN 52.88" WIDE AND 27.88" HIGH FOR MAXI-MUM VISIBILITY. LEFT AND RIGHT WINDSHIELD SHALL USE THE SAME INTERCHANGEABLE GLASS. ALL CAB WINDOWS SHALL BE THE SAME HEIGHT AS THE WINDSHIELD TO PROVIDE FULL PANORAMIC VISIBILITY.

THE SIDE REAR DOOR WINDOWS SHALL BE ROLL-DOWN TYPE 27.50" X 26.00" WITH A TOTAL GLASS AREA OF 715 SQ. IN. EACH.

THE FRONT DOORS SHALL HAVE A FULL ROLL DOWN WINDOW 27.00" X 26.00" WITH A TOTAL GLASS AREA OF 702 SQ.IN. EACH.

TEXTURED STEEL 11" GRAB HANDLES SHALL BE PROVIDED INSIDE THE CAB ON THE HINGE POST AT THE FRONT DOORS FOR ENTERING AND EXITING THE CAB.

THE DRIVER AND OFFICER SEATS SHALL HAVE AN 8" HIGH X 16.25" WIDE X 17.38" DEEP COMPARTMENT IN THE SEAT BOX BENEATH THEM. THE COMPARTMENT SHALL HAVE A HINGED DOOR WITH AN OPENING OF 6" HIGH X 12.50" WIDE.

INTERMITTENT ELECTRIC WIPERS WITH A SINGLE MOTOR AND ELECTRIC POWERED "WET ARM" TYPE WINDSHIELD WASHERS SHALL BE PROVIDED. ACCESS TO THE WIPER MOTOR SHALL BE THROUGH THE DRIVERS SIDE HEADLAMP MODULE LOCATED ON THE FRONT CAB FASCIA.

1.92 CAB DOORS

THE CAB DOORS SHALL BE FLUSH, "BARRIER CLEAR" STYLE, SHORT DOORS WITH HIDDEN .375 STAINLESS STEEL DOOR HINGES. ALL DOORS SHALL BE EQUIPPED WITH PUSH BUTTON TYPE

EXTERIOR LATCHES, SUITABLE FOR USE WITH FIREFIGHTER MITTENS, AND KEYED ALIKE LOCKS THAT ARE DESIGNED TO PREVENT ACCIDENTAL LOCK-OUT.

THE INTERIOR LATCHES SHALL BE FLUSH PADDLE TYPE WHICH ARE INCORPORATED INTO AN UPPER DOOR PANEL.

THE FRONT DOORS SHALL MEASURE 43.00" X 65.00" WITH .13" THICK ALUMINUM SKINS. THE STEPS SHALL BE A TWO (2) STEP CONFIGURATION WITH THE LOWER STEP CONSTRUCTED OF STAINLESS STEEL OPEN GRATE MATERIAL AND THE INTERMEDIATE STEP COVERED WITH EMBOSSED, NFPA COMPLIANT, ALUMINUM TREADPLATE.

THE FOLLOWING MEASUREMENTS SHALL APPLY:
FIRST STEP: 12.13" DEEP X 30.63" WIDE
INTERMEDIATE STEP: 8.62" DEEP X 33.00" WIDE
GROUND TO FIRST STEP: APPROXIMATELY 21.00"
FIRST STEP TO INTERMEDIATE STEP: 11.00"
INTERMEDIATE STEP TO FLOOR: 11.00"

THE REAR DOORS SHALL MEASURE 34.00" X 65.00" WITH .13" THICK ALUMINUM SKINS. THE REAR STEPS SHALL BE A TWO (2) STEP CONFIGURATION WITH THE LOWER STEP CONSTRUCTED OF STAINLESS STEEL OPEN GRATE MATERIAL AND THE INTERMEDIATE STEP COVERED WITH EMBOSSED, NFPA COMPLIANT, ALUMINUM TREADPLATE.

THE FOLLOWING MEASUREMENTS SHALL APPLY:
FIRST STEP: 11.00" DEEP X 21.50" WIDE
INTERMEDIATE STEP: 11.50" DEEP X 23.50" WIDE
GROUND TO FIRST STEP: APPROXIMATELY 21.00"
FIRST STEP TO INTERMEDIATE STEP: 12.50"
INTERMEDIATE STEP TO FLOOR: 12.50"

1.93 ABS INNER DOOR PANEL TRIM

THE INNER DOOR PANELS SHALL BE AN ABS VACUUM FORMED UPPER AND ALUMINUM TREADPLATE LOWER.

1.94 ENGINE COVER

THE FIXED ENGINE COVER SHALL HAVE A FIBERGLASS REINFORCED ABS PLASTIC SHELL INSTALLED. THE ENGINE TUNNEL SHALL BE A MAXIMUM OF 29" HIGH IN THE CENTER AND TAPERING TO 26" ON THE SIDES TO PROVIDE MAXIMUM HIP AND ELBOW ROOM FOR THE DRIVER AND OFFICER.

THE UNDERSIDE OF THE COVER SHALL BE HEAVILY INSULATED WITH 1" MULTI-LAYER FOAM WITH A NON-CONDUCTIVE MYLAR BACKING AND HELD IN PLACE WITH ADHESIVE AND ALUMINUM PINS AND RE-TENTION CAPS.

THE COVER SHALL INCORPORATE A LATCHING ELECTRICAL COMPONENT ACCESS COVER TO ALLOW COMPLE-TE ACCESS TO THE UNDERSIDE OF THE SWITCH PANEL ASSEMBLY AND ELECTRICAL HARNESS AND COMPO-NENTS.

1.95 MOBILE DATA TERMINAL PROVISION

A MOBILE DATA TERMINAL (MDT) PROVISION SHALL BE PROVIDED ABOVE THE GLOVE BOX ON THE OFFICER SIDE OF THE DASH. THE MDT PROVISION SHALL BE RECESSED 3.00" BELOW THE SURFACE OF THE DASH AND 9.50"D X 13.75"W. THE GLOVE BOX SHALL BE 5.75"H X 12.75"W X 5.75"D WITH A HINGED LOCKING DOOR.

1.96 FULL WIDTH CREW CAB DOOR ASSIST RAILS

BLACK POWDER COATED CAST ALUMINUM ASSIST RAILS SHALL BE PROVIDED AND INSTALLED ON THE INSIDE OF THE REAR CREW DOORS THE FULL WIDTH OF THE WINDOW GLASS. THE RAILS SHALL ASSIST PERSONNEL IN EXITING AND ENTERING THE CAB. THE RAILS SHALL BE LOCATED AT THE RETRACTED DOOR WINDOW GLASS LEVEL AND WILL PROTECT THE EXPOSED WINDOW GLASS AREA.

1.97 INTERIOR LIGHTING

THE CAB INTERIOR LIGHTING SHALL CONSIST OF THE FOLLOWING:

A RED/WHITE DOME LAMP WITH SHALL BE LOCATED OVER EACH DOOR. THE WHITE LAMP SHALL BE ACTIVATED BY ITS RESPECTIVE DOOR WHEN OPENED AND BOTH ACTIVATED BY AN INDIVIDUAL SWITCH ON THE LIGHT.

A RED/WHITE LIGHT SHALL BE LOCATED IN THE MOLDED PANEL OF EACH DOOR AND ACTIVATED WHEN THE DOOR IS OPENED. THE LIGHT SHALL BE 6.5" LONG X 3" HIGH.

A TWO (2) LIGHT MODULE WITH DUAL MAP LIGHTS SHALL BE LOCATED IN THE HEADLINER, OVER THE ENGINE TUNNEL.

1.98 ROTATING DOOR AJAR LIGHT

A ROTATING LIGHT SHALL BE INSTALLED IN THE FRONT HEADLINER OF THE CAB. THE LIGHT SHALL BE WIRED TO INDICATE AN OPEN DOOR ON THE CAB WHEN THE PARKING BRAKE IS RELEASED.

1.99 ENGINE TUNNEL LIGHT

A WORK LIGHT SHALL BE PROVIDED AND INSTALLED UNDER THE ENGINE TUNNEL.

1.100 HAND HELD SPOTLIGHT

AN OPTRONICS #KB-4003 HAND-HELD SPOTLIGHT SHALL BE HUNG ON A BRACKET MOUNTED ON THE SIDE OF THE ENGINE TUNNEL NEXT TO THE OFFICER. IT SHALL HAVE A COIL-CORD, A MOMENTARY SWITCH AND A 400,000 CANDLE POWER LAMP.

1.101 MAP LIGHT

A SUNNEX #742-20 GOOSE NECK STYLE INSTRUMENT PANEL MAP LIGHT SHALL BE INSTALLED ON THE RIGHT HAND SIDE OF THE DASH PANEL.

1.102 WEATHER BAND AM/FM RADIO WITH COMPACT DISC PLAYER

A HEAVY DUTY PANASONIC WEATHER BAND AM/FM STEREO RADIO WITH COMPACT DISC PLAYER AND FOUR (4) SPEAKERS SHALL BE INSTALLED IN THE CAB. THE RADIO SHALL BE INSTALLED ABOVE THE DRIVER. TWO (2) SPEAKERS SHALL BE INSTALLED OVERHEAD FRONT WITH THE OTHER TWO (2) SPEAKERS IN THE UPPER REAR CORNERS OF THE CAB.

1.103 12 VOLT RECEPTACLE

A 12 VOLT CIGARETTE LIGHTER TYPE RECEPTACLE SHALL BE PROVIDED IN THE CAB DASH ON THE OFFICER'S SIDE TO ACT AS A POWER SOURCE.

1.104 12 VOLT RECEPTACLE

A 12 VOLT CIGARETTE LIGHTER TYPE RECEPTACLE SHALL BE PROVIDED IN THE CAB DASH ON THE DRIVER'S SIDE TO ACT AS A POWER SOURCE.

1.105 DRIVER SEAT

THE DRIVER SEAT, SHALL BE A SIX WAY ELECTRIC SEATS INC. 911 "ABTS" HIGH BACK. THE SEAT SHALL HAVE TAPERED AND PADDED SEAT CUSHION WITH MECHANICAL SUSPENSION.

THE SEAT SHALL BE EQUIPPED WITH A BLACK INTEGRATED 3-POINT SHOULDER HARNESS WITH LAP BELT AND AN AUTOMATIC RETRACTOR BUILT INTO THE SEAT ASSEMBLY.

1.106 OFFICER SEAT

THE OFFICER SEAT SHALL BE A SEATS INC. 911 "ABTS" 2-WAY HIGH BACK. THE SEAT SHALL HAVE TAPERED AND PADDED SEAT CUSHION AND BACK WITH A MINIMUM OF 39.00" FROM THE CUSHION TO THE HEADLINER.

THE SEAT SHALL BE EQUIPPED WITH A BLACK INTEGRATED 3-POINT SHOULDER HARNESS WITH LAP BELT AND AN AUTOMATIC RETRACTOR BUILT INTO THE SEAT FRAME.

1.107 CREW AREA FLIP UP SEATS

ONE (1) SPRING LOADED HINGED FOLD UP SEAT BOTTOM SHALL BE INSTALLED IN THE CENTER OF THE REAR WALL OF THE CAB. THE REAR WALL OF THE CAB SHALL SERVE AS THE BACK REST FOR THE SEAT.

THE SEAT SHALL BE EQUIPPED WITH A BLACK 3-POINT SHOULDER HARNESS WITH LAP BELT AND AN AUTOMATIC RETRACTOR.

1.108 SCBA CREW SEATS

TWO (2) OUTBOARD REAR FACING SEATS INC. 911 "ABTS" SCBA STYLE SEATS FOR THE QUICK DONNING OF AN AIR PACK SHALL BE PROVIDED. THE SEAT BACK SHALL INCLUDE AN ANGLED HINGED SPLIT HEADREST AND ZICO "CRS" BRACKET W/6" TANK RETENTION CLIPS. A REMOVABLE PADDED VINYL COVER SHALL BE SUPPLIED OVER THE SCBA CAVITY.

EACH SEAT SHALL BE EQUIPPED WITH A BLACK INTEGRATED 3-POINT SHOULDER HARNESS WITH LAP BELT AND AN AUTOMATIC RETRACTOR BUILT INTO THE SEAT ASSEMBLY.

1.109 INTERIOR PAINT

THE INTERIOR METAL SURFACES OF THE CAB SHALL BE FINISH PAINTED THE SAME COLOR AS THE EXTERIOR COLOR OR THE LOWER EXTERIOR COLOR WITH A TWO-TONE.

1.110 ABS INTERIOR TRIM

THE CAB INTERIOR DASH AND HEADER TRIM SHALL BE ABS.

1.111 IMPERIAL 1200 COVERED SEATS

THE SEATS SHALL BE COVERED WITH IMPERIAL 1200 VINYL COATED POLYESTER MATERIAL.

1.112 INTERIOR VINYL AND FLOOR MAT

THE CAB INTERIOR VINYL AND ABS TRIM SURFACES, INCLUDING THE SEATS SHALL BE GRAY IN COLOR.

THE PEBBLE GRAIN, NON-SLIP VINYL COVERED, FOAM BACKED, SOUND DEADENING, MULTI-LAYER INSULATING FLOOR MAT SHALL BE GRAY.

1.113 HVAC SYSTEM

A CEILING MOUNTED HVAC SYSTEM SHALL BE PROVIDED. THE SYSTEM SHALL CONSIST OF AN OVER-HEAD HEATER/DEFROSTER/AIR CONDITIONING UNIT MOUNTED ABOVE THE ENGINE TUNNEL IN A CENTRAL LOCATION WITH DASH MOUNTED CONTROLS. A ROOF MOUNTED CONDENSER IS LOCATED FORWARD OF THE RAISED ROOF AGAINST THE SLOPE RISE, (**NOTE: CONDENSER LOCATION IS TO THE SIDE ON FLAT ROOF CABS AND AERIAL APPLICATIONS**).

THE CEILING MOUNTED HVAC SYSTEM INCLUDES 14 ADJUSTABLE LOUVERS. SIX (6) FORWARD FACING LOUVERS FOR WINDSHIELD, 45,000 BTU'S OF HEAT AT 460 CFM FOR DEFROSTING. FOUR (4) REARWARD FACING LOUVERS TO DIRECT AIR FOR CREW COMFORT AND SIX (6) FOR DRIVER AND OFFICER COMFORT. IN "CABIN MODE" THE SYSTEM IS DESIGNED TO PRODUCE 60,000 BTU'S OF HEAT AND 32,000 BTU'S OF COOLING. THE SYSTEM HAS AN ENGINE MOUNTED SELTEC TM-21 FREON COMPRESSOR. THE SYSTEM SHALL BE CAPABLE OF LOWERING THE CAB INTERIOR TEMPERATURE FROM 100 DEGREES TO 70 DEGREES WITHIN THIRTY MINUTES, WITH A RELATIVE HUMIDITY OF 60 PERCENT.

THE A/C LINES WILL BE A MIXTURE OF CUSTOM BENT ZINC COATED STEEL FITTINGS AND AEROQUIP FLEXIBLE HOSE WITH E-Z CLIP FITTINGS.

TWO (2) 6" DIAMETER FANS SHALL BE INSTALLED IN FORWARD CAB CEILING AT INNERMOST SIDE OF WINDSHIELD. FANS SHALL HAVE SWIVEL BASE WITH THREE POSITION SWITCH OFF/LOW/HIGH.

1.117 DELUXE INSULATION PACKAGE

ADDITIONAL INSULATION IN THE CAB SHALL BE INSTALLED TO IMPROVE AIR CONDITIONING AND/OR HEATING IN EXTREME WEATHER CLIMATES AS WELL AS REDUCING ROAD NOISE. THE SIDES, ROOF AND REAR WALL OF THE CAB SHALL CONTAIN 1" THICK MULTI-LAYERED INSULATION.

1.118 CAB TILT ACTUATION

THE ENTIRE CAB SHALL TILT 45 DEGREES TO ALLOW FOR EASY MAINTENANCE OF THE ENGINE AND TRANSMISSION.

THE CAB TILT ACTUATION SHALL BE WITH AN ELECTRIC OVER HYDRAULIC LIFT PUMP WITH A CONTROL BOX ON A PENNANT FOR SAFE VISUAL OPERATION.

THE LIFT SYSTEM SHALL HAVE AN IGNITION INTERLOCK AND GREEN LOCK DOWN INDICATOR LAMP WHICH SHALL ILLUMINATE WHEN HOLDING "DOWN" SWITCH TO INDICATE SAFE ROAD OPERATION. IT SHALL BE NECESSARY TO ACTIVATE THE MASTER BATTERY SWITCH WITH THE PARK BRAKE SET IN ORDER TO TILT THE CAB.

TWO CAB TILT CYLINDERS SHALL BE PROVIDED WITH VELOCITY FUSES IN EACH CYLINDER PORT. THE CAB PIVOTS SHALL BE 1.90" BALL AND BE ANCHORED TO FRAME BRACKETS WITH 1.25" DIA. STUDS.

TWO SPRING LOADED HYDRAULIC HOLD DOWN HOOKS OUTBOARD OF THE FRAME SHALL BE INSTALLED FOR HOLDING THE CAB SECURELY TO THE FRAME.

A STEEL SAFETY ASSEMBLY SHALL BE INSTALLED ON THE RIGHT SIDE CAB LIFT CYLINDER TO PREVENT ACCIDENTAL CAB LOWERING. THE SAFETY ASSEMBLY SHALL FALL OVER THE LIFT CYLINDER WHEN THE CAB IS IN THE "UP" POSITION. A CABLE RELEASE SYSTEM SHALL ALSO BE

PROVIDED TO CLEAR THE SAFETY ASSEMBLY FROM THE LIFT CYLINDER WHEN LOWERING THE CAB.

1.119 MANUAL CAB LIFT PUMP

A MANUAL CAB LIFT PUMP MODULE SHALL BE ATTACHED TO THE ELECTRIC OVER HYDRAULIC TILT PUMP.

1.120 WHEEL WELL LINERS

FULL WIDTH WHEEL WELL LINERS SHALL BE INSTALLED ON THE EXTRUDED CAB. THE LINERS SHALL BE 16" WIDE ABS PLASTIC, WITH THE OUTER FENDERETTE 2.38" WIDE POLISHED STAINLESS STEEL.

1.121 CAB WINDOWS

SLIDING SIDE WINDOWS, MOUNTED IN A BLACK ANODIZED ALUMINUM FRAME WITH LOWER DRAIN SLOTS, SHALL BE INSTALLED BEHIND FRONT CAB DOORS. THE SLIDING WINDOW SHALL LOCK IN THE CLOSED POSITION.

1.122 CAB WINDOWS

A WINDOW 26"H X 8"W SHALL BE INSTALLED AT THE OUTBOARD EDGE OF THE REAR CAB WALL, ONE EACH SIDE.

1.123 EXTERIOR CAB ASSIST HANDLES

FOUR (4) 23 ¼" LONG, 1 ¼" DIAMETER BRIGHT FINISH EXTRUDED ALUMINUM WITH REPLACEABLE RUBBER INSERT GRIPS. BRACKETS SHALL BE POLISHED CHROME PLATED BRASS TYPE. EXTERIOR ASSIST HANDLES SHALL BE INSTALLED, ONE (1) BEHIND EACH CAB DOOR.

1.124 TELESCOPING LIGHTS, 12 VOLT

TWO (2) 12 VOLT 70 WATT KWIK-RAZE MAGNAFIRE #531 W-2 HID LIGHTS WITH BOTTOM RAISE STYLE TELESCOPING POLES SHALL BE INSTALLED ON THE REAR EXTERIOR OF THE CAB WALL, ONE (1) EACH SIDE. EACH LIGHT SHALL BE INDIVIDUALLY SWITCHED FROM THE CAB DASH.

1.125 FIRECOM COMMUNICATION SYSTEM

A FOUR (4) POSITION FIRECOM COMMUNICATION SYSTEM SHALL BE FURNISHED. ONE (1) POSITION PER SEAT. THE SYSTEM SHALL INCLUDE HEADSETS FOR EACH USER.

THE COMMUNICATION SYSTEM SHALL BE INTERFACED WITH THE WEATHERBAND RADIO SYSTEM.

1.126 CAB MIRRORS

TWO (2) RETRAC WEST COAST STYLE MIRRORS MODEL 1179 SHALL BE PROVIDED. THE MIRRORS SHALL BE SINGLE VISION, NON-MOTORIZED AND NON-HEATED WITH FLAT 7" X 16" HEAD AND 8" ROUND LOWER CONVEX. THE MIRROR HEADS SHALL BE MOUNTED ON STAINLESS STEEL BOW SWING AWAY-TYPE ARMS MOUNTED TO THE CAB DOORS.

1.127 TWO TONE PAINT

THE CAB SHALL BE PAINTED TWO TONE WITH A FINISHED BREAK LINE AT DRIP RAIL.

ALL CAB PAINTING MUST BE COMPLETED PRIOR TO THE INSTALLATION OF GLASS, ACCESSORIES OR ANY OTHER CAB TRIM TO ASSURE COMPLETE PAINT COVERAGE AND MAXIMUM CORROSION PROTECTION.

THE ENTIRE CAB MUST BE DISC GROUND TO REMOVE ANY SURFACE OXIDATION OR SURFACE DEBRIS THAT MAY HINDER THE PAINT ADHESION.

UPON THE APPLICATION OF REQUIRED BODY FILLERS AND THEIR PREPARATION, THE CAB SHALL BE PRIMED WITH A COATING DESIGNED FOR CORROSION RESISTANCE AND SURFACER-PAINT ADHESION. THE ENTIRE CAB THEN SHALL BE COATED WITH AN INTERMEDIATE SURFACER THAT IS DESIGNED TO FILL MINOR SURFACE DEFECTS, PROVIDE AN ADHESIVE BOND BETWEEN THE PRIMER AND THE PAINT, AND IMPROVE THE COLOR AND GLOSS RETENTION OF THE COLOR COATS.

THE CAB SHALL BE FINISH SANDED AND PAINTED WITH TWO (2) TO FOUR (4) COATS OF AN ACRYLIC URETHANE TYPE SYSTEM DESIGNED NOT ONLY FOR COLOR RETENTION BUT TO RESIST ACID RAIN AND MOST ATMOSPHERIC CHEMICALS FOUND ON THE FIRE GROUND OR EMERGENCY SCENE.

THE MAXIMUM OVERALL FILM THICKNESS OF THE TOP COAT SHALL NOT EXCEED FIVE (5) MILS.

THE SPARTAN STANDARD PPG (DBHS OR DCC), SIKKENS FLNA OR DUPONT IMRON (5000 OR 6000) PAINT SHALL BE WARRANTED FOR SEVEN (7) YEARS AGAINST CRACKING, CHECKING OR PEELING AND LOSS OF GLOSS CAUSED BY CHALKING OR FADING.

1.128 HAND SAND AND BUFF FINISH

THE BASE COAT CLEAR COAT FINISH SHALL BE MACHINE POLISHED AFTER WET SANDING TO ACHIEVE A FLAT FINISH. PAINT SHALL MEET ORANGE PEEL STANDARD #9.

1.129 OPERATORS MANUAL AND PARTS LIST

A CHASSIS OPERATORS MANUAL AND PARTS LIST WITH WIRING AND AIR PLUMBING DIAGRAMS SHALL BE PROVIDED. THE WIRING AND PLUMBING DIAGRAMS SHALL BE OF THE CHASSIS MODEL.

1.130 ENGINE AND TRANSMISSION OPERATION MANUAL

ONE (1) ENGINE OPERATION AND MAINTENANCE MANUAL AND ONE (1) TRANSMISSION OPERATION MANUAL SHALL BE INCLUDED IN THE SPARTAN OPERATORS MANUAL.

1.131 DETROIT DIESEL ENGINE SERVICE MANUALS

THE FOLLOWING DETROIT DIESEL ENGINE SERVICE REFERENCE MATERIAL SHALL BE PROVIDED:
6SE483 SERIES 60 SERVICE MANUAL
6SE497 DDEC III / IV TROUBLE SHOOTING GUIDE

1.132 ALLISON HD TRANSMISSION SERVICE MANUALS

THE FOLLOWING ALLISON EVS 4000 TRANSMISSION SERVICE AND REFERENCE MANUALS SHALL BE PROVIDED:
PC2809EN PARTS CATALOG
SM2457EN SERVICE MANUAL
GN2055EN TECHNICIAN GUIDE
TS2973EN ELECTRONIC CONTROLS TROUBLESHOOTING MANUAL

1.133 FIRE EXTINGUISHER

A 2.5 LB. BC DOT APPROVED FIRE EXTINGUISHER SHALL BE SHIPPED LOOSE WITH THE CAB.

1.134 REAR MUD FLAPS

MUD FLAPS SHALL BE INSTALLED BEHIND THE REAR WHEELS AND SHALL BE ATTACHED WITH STAINLESS FASTENERS.

1.135 FUEL FILL OPENINGS - DUAL

A FUEL FILL OPENING SHALL BE FURNISHED ON EACH SIDE OF THE CHASSIS.

1.136 FLUID CAPACITY PLATE

A PERMANENTLY MOUNTED PLATE SHALL BE INSTALLED IN THE DRIVER'S COMPARTMENT. IT SHALL IDENTIFY THE QUANTITY AND TYPE OF THE FOLLOWING FLUIDS USED IN THE VEHICLE: ENGINE OIL, ENGINE COOLANT, CHASSIS TRANSMISSION FLUID, PUMP TRANSMISSION LUBRICATION FLUID, PUMP PRIMER FLUID (IF APPLICABLE) AND DRIVE AXLE LUBRICATION FLUID.

1.137 SEATING CAPACITY PLATE

A PERMANENTLY MOUNTED PLATE SHALL BE INSTALLED IN THE CAB, SPECIFYING THE QUANTITY OF PERSONNEL THE CAB IS DESIGNED TO ACCOMMODATE.

1.138 VEHICLE HEIGHT SIGN

INSTALLED OVERHEAD AND IN CLEAR VIEW OF THE DRIVER SHALL BE A PERMANENTLY MOUNTED SIGN THAT IS ENGRAVED WITH THE OVERALL HEIGHT OF THE COMPLETED APPARATUS.

1.139 AERIAL DEVICE WARNING LABELS

ALL AERIAL DEVICE RELATED WARNING LABELS AND SAFE OPERATION SIGNAGE SUPPLIED BY THE AERIAL DEVICE MANUFACTURER SHALL BE INSTALLED ON THE COMPLETED APPARATUS. ALL LABELS AND SIGNAGE SHALL BE CLEARLY LEGIBLE AND PERMANENTLY INSTALLED IN ACCORDANCE WITH NFPA 1901 STANDARDS.

1.140 WARNING SIGNS

WARNING SIGNS SHALL BE AFFIXED TO THE REAR PANEL AND CREW CAB PROHIBITING PERSONNEL AGAINST RIDING ON THE OUTSIDE OF THE VEHICLE, AND TO RIDE ONLY INSIDE THE CAB ON THE SEATS PROVIDED WITH SEAT BELTS FASTENED.

1.141 APPARATUS LUBRICATION CHART

A LUBRICATION CHART SHALL BE INSTALLED IN THE CAB TO INDICATE THE TYPE AND CAPACITIES OF FLUIDS UTILIZED IN THE PROPOSED APPARATUS. THE CHART SHALL BE EASILY ACCESSIBLE.

THE CHART SHALL INCLUDE, BUT NOT BE LIMITED TO: ENGINE OIL, ENGINE COOLANT, POWER STEERING FLUID, TRANSMISSION FLUID, AXLE LUBRICATION, LUBRICATION GREASE FOR SPRING PINS, HYDRAULIC FLUID (AERIAL DEVICE), FIRE PUMP TRANSMISSION FLUID AND FIRE PUMP PRIMER LUBRICATION.

SECTION 2

2.0 TESTING

THE APPARATUS PUMP SHALL BE THOROUGHLY TESTED BY A CERTIFIED, INDEPENDENT THIRD PARTY TESTING ORGANIZATION SUCH AS UNDERWRITER'S LABORATORIES, IN ACCORDANCE WITH THE APPROPRIATE REQUIREMENTS OF THE LATEST EDITION OF NFPA, STANDARD FOR AUTOMOTIVE FIRE APPARATUS.

UPON DELIVERY, THE PURCHASER MAY ELECT TO DUPLICATE SOME OR ALL OF THESE PUMPING TESTS. THE MANUFACTURER SHALL INCLUDE ALL REQUIRED CERTIFICATION FORMS IN THE DELIVERY PACKAGE.

IN EVENT THE APPARATUS FAILS TO MEET ON-SITE DELIVERY TESTING, SECOND TRIALS MAY BE ARRANGED WITHIN 30 DAYS FOLLOWING FIRST TEST FAILURE. SUCH SUBSEQUENT TRIALS SHALL BE FINAL AND CONCLUSIVE AND FAILURE TO MEET THESE REQUIREMENTS SHALL BE CAUSE FOR REJECTION.

ALSO, FAILURE TO MAKE CHANGES DEEMED NECESSARY BY THE PURCHASER TO MAKE APPARATUS CONFORM TO ANY CLAUSE OF THE SPECIFICATIONS WITHIN 30 DAYS AFTER NOTICE TO THE MANUFACTURER SHALL ALSO BE DEEMED CAUSE FOR REJECTION OF THE APPARATUS. PERMISSION TO KEEP OR STORE THE APPARATUS BY THE PURCHASER DURING THE TESTING AND RE-TESTING PERIOD, IF AGREEABLE WITH MANUFACTURER, SHALL NOT CONSTITUTE ACCEPTANCE OF THE APPARATUS.

2.1 PUMP ENCLOSURE

A SIDE CONSOLE PUMP ENCLOSURE SHALL BE INSTALLED. THE SUBSTRUCTURE SHALL BE CONSTRUCTED ENTIRELY OF 304 STAINLESS STEEL TUBING. TRANSVERSE 304 STAINLESS STEEL CROSSMEMBERS SHALL SUPPORT THE SUBSTRUCTURE AND THE EXTERIOR PANELS INDEPENDENTLY FROM THE CAB AND REAR BODY OF THE APPARATUS. THE CROSSMEMBERS SHALL BE ISOLATED FROM THE CHASSIS FRAME RAILS.

THE PUMP ENCLOSURE SHALL BE A FREE STANDING MODULE SUPPORTED ONLY BY THE TOP OF THE FRAME RAILS, IN A MINIMUM OF FOUR (4) PLACES, AND SECURED WITH ANGLE BRACKETS BOLTED TO BOTH THE PUMP ENCLOSURE SUPPORT CROSS RAILS AND THE SIDE OF THE CHASSIS FRAME RAILS. THIS DESIGN IS REQUIRED TO ELIMINATE SHIFT AND STRESS ON THE PUMP ENCLOSURE, PUMP PANELS AND RUNNING BOARDS.

A BRUSHED STAINLESS STEEL HINGED SERVICE DOOR SHALL BE INSTALLED ON THE RIGHT AND LEFT SIDES OF THE PUMP ENCLOSURE.

ALL SIDE PANELS, INSTRUMENT PANELS, AND BEZELS SHALL BE DEBURRED TO ELIMINATE SHARP EDGES. FOR BEST UNIFORM APPEARANCE, ALL BRUSHED FINISH ON THE STAINLESS STEEL TRIM PIECES SHALL RUN IN THE SAME HORIZONTAL DIRECTION.

2.2 PUMP ENCLOSURE DIMENSIONS

OVERALL LENGTH SHALL BE 40.00" FRONT TO BACK, PLUS FLEX JOINTS.

OVERALL WIDTH SHALL BE 72.00" SIDE TO SIDE, PLUS RUNNING BOARDS.

2.3 CONTROL AND INSTRUMENT PANELS

REMOVABLE 14 GAUGE BRUSHED STAINLESS STEEL PUMP PANELS SHALL BE INSTALLED. ALL ITEMS ON THESE PANELS SHALL BE FUNCTIONALLY ARRANGED. THESE PANELS SHALL HAVE LARGE CUT-OUTS WITH STAINLESS STEEL TRIM COLLARS FOR EASE OF SERVICE OF SIDE MOUNTED SUCTION AND DISCHARGE VALVES WITHOUT REQUIRING DISASSEMBLY OF THE LOWER SIDE PANELS FOR ROUTINE MAINTENANCE.

THERE SHALL BE ONE (1) HINGED GAUGE PANEL ON THE PUMP PANEL. THE MASTER PRESSURE AND SUCTION GAUGES AS WELL AS ENGINE MONITOR GAUGES AND INDIVIDUAL LINE PRESSURE GAUGES. BOTH PANELS SHALL BE SECURELY HELD IN THE OPEN POSITION USING CORROSION RESISTANT VINYL COVERED RETAINING CHAINS. TWO (2) ADJUSTABLE GRIP LATCHES SHALL BE INSTALLED ON EACH DOOR TO HOLD THE PANELS CLOSED.

ALL LINE GAUGES SHALL BE FUNCTIONALLY ARRANGED AND LOCATED DIRECTLY ABOVE ACTUATOR HANDLES IN A HORIZONTAL PLANE AND SHALL BE DIRECTLY CORRESPONDING. THIS SHALL ELIMINATE CONFUSION WHEN OPERATING DISCHARGE VALVES AND MONITORING DISCHARGE PRESSURES. ALL ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 1901 STANDARDS.

AN ALUMINUM TREADPLATE HOODED LIGHT SHALL BE INSTALLED ABOVE THE LEFT SIDE PUMP CONNECTION PANEL. WELDON 2-1/2" X 6" MODEL 2025 CLEAR LENS LIGHTS SHALL BE INSTALLED UNDER THE HOOD. LIGHTS SHALL BE CONTROLLED BY A SWITCH ON THE PUMP OPERATOR'S PANEL. OTHER ITEMS AS REQUIRED BY THE SPECIFICATIONS SHALL BE FUNCTIONALLY ARRANGED ON THE PANELS. INDIVIDUAL DRAIN VALVE CONTROLS AND MASTER DRAIN CONTROLS SHALL BE LOCATED AT THE LOWER AREA OF THE SIDE PUMP PANELS.

2.4 CROSSLAYS

TWO (2) PRECONNECTED CROSSLAY COMPARTMENTS SHALL BE PROVIDED. THE CROSSLAY DIVIDER SHALL BE ADJUSTABLE.

THE FLOORING SHALL BE REMOVABLE SECTIONS OF MACHINE PUNCHED VENTILATED 3/16" THICK ALUMINUM MATERIAL. THE FLOORS SHALL INCLUDE CUT-OUTS FOR THE SWIVEL ELBOWS TO ALLOW PRECONNECTED HOSE TO BE DEPLOYED FROM BOTH SIDES OF THE APPARATUS.

2.5 CROSSLAY CAPACITY

CROSSLAYS SHALL ACCOMMODATE UP TO 200' OF 1-1/2" DOUBLE JACKETED PRECONNECTED HOSE IN A SINGLE STACK.

2.6 RUNNING BOARDS

TWO (2) 3/16" ALUMINUM TREADPLATE RUNNING BOARDS SHALL BE BOLTED TO THE PUMP ENCLOSURE SUBSTRUCTURE. RUNNING BOARDS SHALL BE A MINIMUM OF 12" DEEP. EACH PUMP AREA RUNNING BOARD SHALL BE EQUIPPED WITH BUSTIN NON-SKID ALUMINUM WELDED INSERTS FOR SAFE FOOTING AND IMPROVED DRAINAGE. THE INSERTS SHALL BE WELDED FLUSH WITH THE PATTERN OF THE TREADPLATE TO ELIMINATE TRIPPING HAZARDS.

2.7 PULL-OUT PUMP STEP - LEFT SIDE

A PULL-OUT OPERATOR'S STEP SHALL BE PROVIDED UNDER THE LEFT SIDE PUMP PANEL STEP. THIS STEP SHALL BE CONSTRUCTED OF A STEEL TUBE FRAME WITH GRIP STRUT GRATING

SURFACE WITHIN THE STEEL TUBE FRAME. THE STEP SHALL BE PROVIDED WITH STAINLESS STEEL RODS AND SLIDES FOR SMOOTH OPERATION. A POSITIVE MECHANICAL LOCK SHALL BE PROVIDED TO HOLD THE STEP IN BOTH THE IN AND OUT POSITIONS.

2.8 PULL-OUT PUMP STEP - RIGHT SIDE

A PULL-OUT OPERATOR'S STEP SHALL BE PROVIDED UNDER THE RIGHT SIDE PUMP PANEL STEP. THIS STEP SHALL BE CONSTRUCTED OF A STEEL TUBE FRAME WITH GRIP STRUT GRATING SURFACE WITHIN THE STEEL TUBE FRAME. THE STEP SHALL BE PROVIDED WITH STAINLESS STEEL RODS AND SLIDES FOR SMOOTH OPERATION. A POSITIVE MECHANICAL LOCK SHALL BE PROVIDED TO HOLD THE STEP IN BOTH THE IN AND OUT POSITIONS.

2.9 TAGS

PERMANENTLY MOUNTED COLOR CODED ETCHED ZINC TAGS SHALL BE INSTALLED TO IDENTIFY ALL VALVE CONTROLS, GAUGES, AND DRAIN VALVES, ETC. COLOR CODING FORMAT TO BE USED SHALL BE AS PER THE RECOMMENDATIONS LISTED IN THE APPENDIX OF THE CURRENT NFPA PAMPHLET 1901.

2.10 "NO STEP" TAGS

A MINIMUM OF TWO (2) PERMANENTLY MOUNTED ETCHED ZINC TAGS SHALL BE INSTALLED TO IDENTIFY NON-STEP SURFACES AT AND AROUND THE PUMP ENCLOSURE.

2.11 PUMP PANEL APPROVAL DRAWINGS

A DETAILED LAYOUT OF THE PUMP OPERATOR'S PANEL AND RELATED CONTROLS SHALL BE FORWARDED TO THE TRUCK COMMITTEE FOR APPROVAL PRIOR TO THE START OF PUMP PANEL FABRICATION.

2.12 LIGHT HOOD FOR CURB SIDE PUMP PANEL

A HOODED LIGHT SHIELD SHALL BE INSTALLED ABOVE THE RIGHT SIDE PUMP CONNECTION PANEL. LIGHTS SHALL BE CONTROLLED BY THE PUMP OPERATOR'S PANEL LIGHT SWITCH.

2.13 PUMP COMPARTMENT WORK LIGHTS

TWO (2) MANUALLY SWITCHED CLEAR LENS TRUCK-LITE MODEL 80350 5" PUMP COMPARTMENT WORK LIGHTS SHALL BE INSTALLED ONE EACH SIDE OF THE PUMP ENCLOSURE.

2.14 VALVE CONTROLS

HEAVY DUTY CLASS 1 CHROME PLATED TWIST LOCK STYLE PUSH-PULL VALVE CONTROL HANDLES SHALL BE INSTALLED WHERE BUILT-IN VALVE HANDLES ARE NOT SPECIFIED. DISCHARGES AND GATED INTAKES 3" AND LARGER SHALL INCLUDE A SPEED REGULATED MECHANISM AS REQUIRED BY NFPA 1901.

FOR EASE OF OPERATION, THE PUSH-PULL HANDLES SHALL BE POSITIONED DIRECTLY BELOW THE PRESSURE GAUGES. AN INDIVIDUAL COLOR CODED IDENTIFICATION LABEL SHALL BE DIRECTLY INSERTED INTO THE FACE OF THE PUSH-PULL HANDLES.

2.15 MASTER GAUGES

THE MASTER PUMP SUCTION AND MASTER PUMP PRESSURE GAUGES SHALL BE 4-1/2" DIAMETER CLASS 1 SUB-Z INTERLUBE FILLED 30-0-600 PSI COMPOUND GAUGES, WITH BLACK LETTERS ON A WHITE BACKGROUND.

2.16 INDIVIDUAL LINE GAUGES

EACH DISCHARGE SHALL BE EQUIPPED WITH AN INDIVIDUAL 2-1/2" DIAMETER CLASS 1 PREMIUM SUB-Z INTERLUBE FILLED 30-0-600 PSI COMPOUND GAUGE, WITH BLACK LETTERS ON A WHITE BACKGROUND.

2.17 ENGINE INFORMATION SYSTEM

INSTALLED AT THE PUMP OPERATOR'S PANEL SHALL BE CLASS 1 ENFO III ENGINE OPERATING INFORMATION/WARNING SYSTEM WITH LARGE LED DISPLAYS TO MONITOR THE FOLLOWING:

ENGINE RPM TACHOMETER, NUMERIC LED DISPLAY.

ENGINE OIL PRESSURE, NUMERIC LED DISPLAY. IF LOW OIL PRESSURE OCCURS, DISPLAY ALTERNATES BETWEEN ACTUAL PRESSURE AND **LO**, ACTIVATING THE ALARM.

ENGINE COOLANT TEMPERATURE, NUMERIC LED DISPLAY. IF HIGH ENGINE TEMPERATURE OCCURS, DISPLAY ALTERNATES BETWEEN ACTUAL TEMPERATURE AND **HI**, ACTIVATING THE ALARM.

ELECTRICAL SYSTEM VOLTAGE, NUMERIC LED DISPLAY. AN ADVERSE CHANGE IN VOLTAGE CONDITION WILL ALTERNATE DISPLAY BETWEEN ACTUAL VOLTAGE AND **LO**, OR **HI**, ACTIVATING THE ALARM.

THE ENFO III INCLUDES A BUILT-IN AUDIBLE ALARM WIRED TO THE OIL PRESSURE, WATER TEMPERATURE AND CHASSIS VOLTAGE WARNING SYSTEM MONITORS.

2.18 VERNIER THROTTLE

A VERNIER THROTTLE CONTROL SHALL BE WIRED TO THE ELECTRONIC ENGINE CONTROLS.

2.19 FUEL GAUGE

CHASSIS FUEL GAUGE POWERED BY A SEPARATE SENDER IN THE TANK.

2.20 FAST IDLE

A PRESET FAST IDLE SET AT 1400 RPM (OR AS OTHERWISE REQUIRED) SHALL BE INCLUDED WITH THE ELECTRONIC ENGINE. THE HIGH IDLE FEATURE SHALL BE ACTIVATED BY A CONTROL SWITCH MOUNTED IN THE CENTRAL DASH PANEL.

2.21 WATER LEVEL SIGHT GLASS

THE WATER LEVEL SIGHT GLASS TUBE WITH RED INDICATOR BALL, SHALL BE MOUNTED ON THE TANK AND VISIBLE FROM THE PUMP OPERATOR'S PANEL.

2.22 RADIO EQUIPMENT ENCLOSURE

AN ENCLOSURE FOR THE PUMP OPERATOR RADIO COMMUNICATIONS EQUIPMENT IS NOT REQUIRED.

2.23 FIRE PUMP

A HALE QMAX 1000 GPM SINGLE STAGE MIDSHIP FIRE PUMP SHALL BE INSTALLED.

2.24 PUMP ASSEMBLY

THE PUMP BODY AND RELATED PARTS SHALL BE OF FINE GRAIN ALLOY CAST IRON, WITH A MINIMUM TENSILE STRENGTH OF 30,000 PSI. ALL MOVING METAL PARTS IN CONTACT WITH WATER SHALL BE OF HIGH QUALITY BRONZE OR STAINLESS STEEL.

THE PUMP BODY SHALL BE SPLIT ON A SINGLE PLANE FOR EASY REMOVAL OF THE ENTIRE IMPELLER ASSEMBLY INCLUDING WEAR RINGS AND BEARINGS FROM UNDERNEATH, WITHOUT DISTURBING PIPING OR THE MOUNTING OF THE PUMP ON THE CHASSIS. THE ENTIRE PUMP SHALL BE CAST, MANUFACTURED AND TESTED AT THE PUMP MANUFACTURER'S FACTORY.

THE PUMP SHALL BE DRIVEN BY A DRIVE LINE FROM THE TRUCK TRANSMISSION. THE ENGINE SHALL PROVIDE SUFFICIENT HORSEPOWER AND RPM TO ENABLE THE PUMP TO MEET AND EXCEED ITS RATED PERFORMANCE.

THE ENTIRE PUMP, BOTH SUCTION AND DISCHARGE PASSAGES, SHALL BE HYDROSTATICALLY TESTED TO A PRESSURE OF 500 PSI. THE PUMP SHALL BE FULLY TESTED AT THE PUMP MANUFACTURER'S FACTORY TO THE PERFORMANCE SPECIFICATIONS AS OUTLINED BY THE NFPA. PUMP SHALL BE FREE FROM OBJECTIONABLE PULSATION AND VIBRATION.

2.25 DRIVE UNIT

THE DRIVE UNIT SHALL BE CAST AND COMPLETELY MANUFACTURED AND TESTED AT THE PUMP MANUFACTURER'S FACTORY. PUMP DRIVE UNIT SHALL BE OF SUFFICIENT SIZE TO WITHSTAND UP TO 16,000 POUNDS/FOOT OF TORQUE OF THE ENGINE IN BOTH ROAD AND PUMP OPERATING CONDITIONS. THE DRIVE UNIT SHALL BE DESIGNED OF AMPLE CAPACITY FOR LUBRICATION RESERVE AND TO MAINTAIN THE PROPER OPERATING TEMPERATURE.

THE GEARBOX DRIVE SHAFTS SHALL BE OF HEAT-TREATED CHROME NICKEL STEEL AND AT LEAST 2-3/4" IN DIAMETER FOR INPUT AND OUTPUT DRIVE SHAFTS. ALL GEARS SHALL BE OF THE HIGHEST QUALITY ELECTRIC FURNACE CHROME NICKEL STEEL.

2.26 MASTER DRAIN VALVE

A MASTER DRAIN VALVE SHALL BE INSTALLED AND OPERATED FROM THE PUMP PANEL AREA. THE VALVE SHALL BE LOCATED LOWER THAN THE MAIN PUMP BODY.

2.27 SPEED COUNTER

A MECHANICAL PUMP SPEED COUNTER SHALL BE INSTALLED ON THE LOWER PUMP PANEL AREA FOR CONDUCTING FIRE PUMP CERTIFICATION TESTS.

2.28 FIRE PUMP INSTALLATION

DRIVELINES SHALL BE CUSTOM FIT AND BALANCED AT THE CHASSIS ASSEMBLY STAGE AND PROPERLY ATTACHED TO THE PUMP TRANSMISSION.

2.29 SACRIFICIAL ANODES

TWO (2) REPLACEABLE SACRIFICIAL ANODES SHALL BE INSTALLED IN THE PUMP BODY, ONE (1) ON THE LEFT SIDE AND ONE (1) ON THE RIGHT SIDE, TO HELP PREVENT PUMP DAMAGE FROM CORROSION OR RUST.

2.30 PRIMING PUMP

THE PRIMING PUMP SHALL BE A HALE ENVIRONMENTALLY SAFE, OIL-LESS, POSITIVE DISPLACEMENT VANE TYPE, ELECTRICALLY DRIVEN AND CONFORM TO STANDARDS OUTLINED BY THE NFPA. ONE PRIMING CONTROL SHALL BOTH OPEN THE PRIMING VALVE AND START THE PRIMING MOTOR.

2.31 PACKING GLANDS

THE FIRE PUMP SHALL BE EQUIPPED WITH LONG-LIFE GRAPHITE PACKING GLANDS.

2.32 MANUALS

TWO (2) SETS OF PUMP OPERATION AND PARTS MANUALS SHALL BE SUPPLIED.

2.33 FIRE PUMP PAINTING

THE FIRE PUMP BODY AND PLUMBING SHALL BE PAINTED BLACK.

2.35 PUMP PRESSURE CONTROL

THE PUMP SHALL BE EQUIPPED WITH A HALE QD SERIES AUTOMATIC PRESSURE CONTROL DEVICE MOUNTED ON THE PUMP OPERATOR'S PANEL. A SINGLE BRONZE VARIABLE PRESSURE SETTING RELIEF VALVE SHALL BE PROVIDED AND BE OF AMPLE CAPACITY TO PREVENT AN UNDUE PRESSURE RISE AS PER NFPA. THE RELIEF VALVE SHALL BE NORMALLY CLOSED AND SHALL OPEN AGAINST PUMP PRESSURE, WITH A CONTROL LIGHT TO SIGNAL WHEN OPEN.

IN EVENT OF RELIEF VALVE CONTROL FAILURE, THE PUMP IS TO REMAIN OPERABLE FOR THE COMPLETE RANGE OF THE PUMP'S RATED CAPACITY, WITHOUT REQUIRING THE CLOSING OF ANY EMERGENCY OR IN CASE OF FAILURE (OFF/ON) VALVES.

2.36 PUMP PRESSURE CONTROL

THE PUMP PRESSURE SHALL BE CONTROLLED BY A FIRE RESEARCH GOVERNOR PRO SERIES ELECTRONIC MODULE MOUNTED ON THE PUMP OPERATOR'S PANEL THAT INTERFACES WITH THE ENGINE'S ELECTRONIC THROTTLE SYSTEM CONTROLLER. GOVERNOR PRO SHALL ALLOW THE PUMP OPERATOR TO OPERATE IN EITHER PRESSURE MODE OR IN THROTTLE MODE BY PRESSING DESIRED SEALED MEMBRANE SWITCHES, TOGETHER WITH INCREASE OR DECREASE SELECTOR SWITCHES.

INSTALLATION SHALL INCLUDE SAFETY INTERLOCKS TO ENSURE THAT THE PARKING BRAKES ARE ENGAGED, AND THAT THE TRANSMISSION IS IN PROPER GEAR FOR THE INTENDED OPERATION. ALL SWITCHES SHALL BE WEATHERPROOF, COLOR CODED, AND THE DIGITAL DISPLAY SHALL BE BACKLIGHTED FOR EASE OF OPERATION IN AMBIENT LIGHT CONDITIONS.

2.37 RELIEF VALVE

AN ADJUSTABLE RELIEF VALVE SHALL BE INSTALLED ON THE INTAKE SIDE OF THE PUMP. THE RELIEF VALVE SHALL BE PRESET AT 125 PSI. INSTALL AND LABEL PER NFPA 1901 STANDARDS.

2.38 PUMP SHIFT CONTROL

THE MIDSHIP FIRE PUMP SHIFT CONTROL SHALL BE AN ELECTRIC OVER AIR MECHANISM THAT SHALL BE LOCATED ON THE RIGHT SIDE OF THE STEERING COLUMN, AND POSITIONED IN A LOCATION THAT IS IN CLOSE PROXIMITY TO THE TRANSMISSION SHIFT SELECTOR. THE SHIFT MECHANISM SHALL BE WIRED INTO THE VEHICLE INTERFACE MODULE TO INTERLOCK THE ENGINE RPM CONTROL, TRANSMISSION DIRECT DRIVE HOLD MODE, AND PUMP ENGAGE.

THE SHIFT SWITCH CONSOLE SHALL CONSIST OF THREE (3) INDICATOR LIGHTS. THIS CONSOLE SHALL INCLUDE A GREEN INDICATOR LIGHT THAT SHALL BE ENERGIZED WHEN THE PUMP SHIFT HAS BEEN COMPLETED, AND SHALL BE LABELED, "PUMP ENGAGED".

A SECOND GREEN INDICATOR LIGHT IN THE DRIVING COMPARTMENT SHALL BE PROVIDED AND ENERGIZED WHEN BOTH THE PUMP SHIFT HAS BEEN COMPLETED AND THE CHASSIS TRANSMISSION IS ENGAGED IN PUMP GEAR. THE LIGHT SHALL BE LABELED, "OK TO PUMP".

ELECTRONIC SIGNALS SHALL BE PROVIDED AT THE FIREWALL TO FACILITATE INSTALLATION OF A WARNING LIGHT AT THE PUMP OPERATOR'S POSITION, INDICATING WHEN THE CHASSIS TRANSMISSION IS IN THE NEUTRAL POSITION AND THE PARKING BRAKE IS ENGAGED.

A THIRD GREEN INDICATOR LIGHT IN THE DRIVING COMPARTMENT SHALL BE PROVIDED AND ENERGIZED WHEN THE PUMP SHIFT HAS BEEN COMPLETELY DISENGAGED, AND THE CHASSIS DRIVE AXLE HAS BEEN ENGAGED, AND SHALL BE LABELED, "ROAD GEAR".

2.39 PIPING

LEFT AND RIGHT SIDE PUMP PANEL DISCHARGES SHALL BE BOLTED DIRECTLY TO THE DISCHARGE PORTS THAT ARE CAST INTO THE FIRE PUMP BODY FOR MAXIMUM FLOW EFFICIENCY.

ALL PIPING AND FITTINGS 1-1/2" THROUGH 3" SHALL BE HIGH PRESSURE FLEXIBLE PIPING WITH STAINLESS STEEL COUPLINGS OR SCHEDULE 40 GALVANIZED. LARGER DIAMETER PIPING SHALL BE SCHEDULE 40 BLACK IRON.

WHEREVER POSSIBLE, PIPING SHALL BE FLANGE BOLTED TO THE MULTIPLE TAP OPENINGS ON THE PUMP BODY. FOR EASE OF SERVICE AND LONGER LIFE OF PLUMBING, VICTAULIC COUPLINGS SHALL BE UTILIZED WHERE NECESSARY.

2.40 DRAINS

INDIVIDUAL DRAIN/BLEEDER VALVES SHALL BE CLASS 1 QUARTER TURN STYLE, LABELED PER NFPA STANDARDS FOR 2" AND LARGER LINES.

2.41 TANK FILL

A 1-1/2" FULL FLOW PUMP TO TANK FILL/PUMP BYPASS LINE SHALL BE CONTROLLED AT THE PUMP OPERATOR'S PANEL. THE PLUMBING FROM THE VALVE TO THE WATER TANK SHALL BE CLASS 1 HIGH PRESSURE FLEXIBLE HOSE WITH STAINLESS STEEL COUPLINGS. THE TANK FILL FITTING IN THE SPECIFIED WATER TANK SHALL BE SIZED TO ACCOMMODATE THIS VALVE.

2.42 TANK SUCTION

THE TANK SUCTION PIPING SHALL BE FULL FLOW 3", WITH A 3" AKRON BALL VALVE HAVING A FLEXIBLE CONNECTION WITH DOUBLE STAINLESS STEEL CLAMP ASSEMBLIES, AND A SWING TYPE CHECK VALVE, CONTROLLED AT THE PUMP OPERATOR'S PANEL. TANK TO PUMP FLOW RATE SHALL BE A MINIMUM OF 500 GPM.

2.43 ENGINE COOLER

AN AUXILIARY HEAT EXCHANGER SHALL BE PROVIDED FOR ADDED ENGINE COOLING DURING PUMP OPERATION. THE AUXILIARY ENGINE COOLER SHALL BE MOUNTED DIRECTLY BEHIND THE RADIATOR TANK AND SHALL USE WATER FROM THE FIRE PUMP DURING PUMPING

OPERATION. THE RADIATOR PLUMBING SHALL INCLUDE A DRAINCOCK FOR COOLANT EVACUATION.

THE CONTROL VALVE FOR THE HEAT EXCHANGER SHALL BE LOCATED ON THE PUMP OPERATOR'S PANEL, AND SHALL BE A CLASS 1 QUARTER TURN BALL VALVE WITH CHROME PLATED HANDLE AND AN "AUXILIARY COOLER" IDENTIFICATION TAG RECESSED INTO THE FACE OF THE HANDLE.

2.44 PUMP COOLER

THE PUMP SHALL HAVE A BY-PASS COOLER LINE INSTALLED FROM THE DISCHARGE SIDE OF THE PUMP TO THE WATER TANK TO COOL THE PUMP DURING SUSTAINED PERIOD OF OPERATION WHEN WATER IS NOT BEING DISCHARGED.

THE PUMP COOLER CONTROL VALVE, LOCATED ON THE PUMP OPERATOR'S PANEL, SHALL BE A CLASS 1 38BV QUARTER TURN BALL VALVE WITH CHROME PLATED HANDLE AND "PUMP BY-PASS" IDENTIFICATION TAG RECESSED INTO THE FACE OF THE HANDLE.

2.45 RATING

THE PUMP SHALL BE CERTIFIED TO MEET THE FOLLOWING DELIVERIES FROM DRAFT THROUGH 20 FEET OF 6 INCH SUCTION HOSE WITH A 10 FOOT LIFT:

1000 GPM @ 150 PSI
1000 GPM @ 165 PSI
750 GPM @ 200 PSI
500 GPM @ 250 PSI

2.46 SUCTION INLETS

THE LEFT SIDE MAIN INLET SHALL BE 6" NST MALE EQUIPPED WITH A CONCEALED FULL FLOW HALE MIV-E 6" BUTTERFLY VALVE LOCATED BEHIND THE STAINLESS STEEL PUMP PANEL. INLET SHALL ALSO INCLUDE A MANUALLY OPERATED AIR BLEEDER/DRAIN VALVE, RECESSED GRID STRAINER AND LONG HANDLE CAP. THE BUTTERFLY VALVE SHALL BE DESIGNED TO PERMIT 1000 GPM FLOW FROM DRAFT INCORPORATING AN ELECTRIC ACTUATOR THAT IS REMOTE CONTROLLED BY THE PUMP OPERATOR. VALVE CONTROL SHALL BE NFPA 1901 COMPLIANT SPEED REGULATED AND THE SWITCH CONTROL MODULE SHALL INCLUDE BUILT-IN COLOR CODED VALVE POSITION INDICATOR LIGHTS.

A MANUAL OVERRIDE HANDWHEEL OPERATED BACK-UP SHALL BE PROVIDED NEXT TO THE BUTTERFLY VALVE AT THE SIDE PUMP PANEL FOR USE IN CASE OF EMERGENCY. HANDWHEEL DESIGN SHALL CYCLE FROM FULL OPEN TO FULL CLOSE (OR VICE VERSA) IN NOT MORE THAN 10 COMPLETE TURNS. THE USE OF THE MANUAL OVERRIDE SHALL NOT REQUIRE SPECIAL TOOLS OR CHANGE OVER MODIFICATIONS TO OPERATE. MANUAL OVERRIDE SHALL BE SPEED REGULATED AND COMPLIANT WITH NFPA 1901.

THE MAIN INTAKE VALVE SHALL ALSO INCORPORATE A BUILT-IN SUCTION SIDE PRESSURE RELIEF VALVE, FULLY ADJUSTABLE, PRESET AT 125 PSI. DISCHARGE FROM INTAKE RELIEF VALVE SHALL TERMINATE BENEATH THE RUNNING BOARD WITH A 2-1/2" NST MALE ADAPTER AND LABEL IN ACCORDANCE WITH NFPA 1901.

THE RIGHT SIDE MAIN INLET SHALL BE 6" NST MALE EQUIPPED WITH A CONCEALED FULL FLOW HALE MIV-E 6" BUTTERFLY VALVE LOCATED BEHIND THE STAINLESS STEEL PUMP PANEL. INLET SHALL ALSO INCLUDE A MANUALLY OPERATED AIR BLEEDER/DRAIN VALVE, RECESSED GRID STRAINER AND LONG HANDLE CAP. THE BUTTERFLY VALVE SHALL BE DESIGNED TO PERMIT 1000 GPM FLOW FROM DRAFT INCORPORATING AN ELECTRIC ACTUATOR THAT IS REMOTE CONTROLLED BY THE PUMP OPERATOR. VALVE CONTROL SHALL BE NFPA 1901 COMPLIANT SPEED REGULATED AND THE SWITCH CONTROL MODULE SHALL INCLUDE BUILT-IN COLOR CODED VALVE POSITION INDICATOR LIGHTS.

A MANUAL OVERRIDE HANDWHEEL OPERATED BACK-UP SHALL BE PROVIDED NEXT TO THE BUTTERFLY VALVE AT THE SIDE PUMP PANEL FOR USE IN CASE OF EMERGENCY. HANDWHEEL DESIGN SHALL CYCLE FROM FULL OPEN TO FULL CLOSE (OR VICE VERSA) IN NOT MORE THAN 10 COMPLETE TURNS. THE USE OF THE MANUAL OVERRIDE SHALL NOT REQUIRE SPECIAL TOOLS OR CHANGE OVER MODIFICATIONS TO OPERATE. MANUAL OVERRIDE SHALL BE SPEED REGULATED AND COMPLIANT WITH NFPA 1901.

THE MAIN INTAKE VALVE SHALL ALSO INCORPORATE A BUILT-IN SUCTION SIDE PRESSURE RELIEF VALVE, FULLY ADJUSTABLE, PRESET AT 125 PSI. DISCHARGE FROM INTAKE RELIEF VALVE SHALL TERMINATE BENEATH THE RUNNING BOARD WITH A 2-1/2" NST MALE ADAPTER AND LABEL IN ACCORDANCE WITH NFPA 1901.

AN AKRON 2-1/2" GATED SUCTION VALVE SHALL BE INSTALLED IN THE LEFT SIDE PUMP PANEL WITH THE VALVE BODY BEHIND THE PANEL. IT SHALL BE PIPED TO THE LEFT SIDE SUCTION TUBE AT THE REAR OF THE PUMP. THE VALVE SHALL BE EQUIPPED WITH A BRASS INLET STRAINER, 2-1/2" CHROME INLET SWIVEL, CHROME PLUG AND CHAIN. THIS INTAKE SHALL BE CONTROLLED AT THE VALVE.

AN AKRON 2-1/2" GATED SUCTION VALVE SHALL BE INSTALLED IN THE RIGHT SIDE PUMP PANEL WITH THE VALVE BODY BEHIND THE PANEL. IT SHALL BE PIPED TO THE RIGHT SIDE SUCTION TUBE AT THE REAR OF THE PUMP. THE VALVE SHALL BE EQUIPPED WITH A BRASS INLET STRAINER, 2-1/2" CHROME INLET SWIVEL, CHROME PLUG AND CHAIN. THIS INTAKE SHALL BE CONTROLLED AT THE VALVE.

2.47 DISCHARGE OUTLETS

ONE (1) AKRON 2-1/2" STRAIGHT SNOOT VALVE (NO ELBOW) SHALL BE LOCATED AT THE LEFT SIDE FORWARD AREA OF THE PUMP ENCLOSURE AND CONNECTED TO THE DISCHARGE SIDE OF THE PUMP WITH THE VALVE BODY BEHIND THE PUMP PANEL. VALVE SHALL BE CONTROLLED FROM THE PUMP OPERATOR'S PANEL.

ONE (1) AKRON 2-1/2" STRAIGHT SNOOT VALVE (NO ELBOW) SHALL BE LOCATED AT THE LEFT SIDE REARWARD AREA OF THE PUMP ENCLOSURE AND CONNECTED TO THE DISCHARGE SIDE

OF THE PUMP WITH THE VALVE BODY BEHIND THE PUMP PANEL. VALVE SHALL BE CONTROLLED FROM THE PUMP OPERATOR'S PANEL.

ONE (1) AKRON 3" ELECTRICALLY ACTUATED FULL FLOW BALL VALVE SHALL BE LOCATED AT THE RIGHT SIDE FORWARD AREA OF THE PUMP ENCLOSURE AND CONNECTED TO THE DISCHARGE SIDE OF THE PUMP WITH THE VALVE BODY BEHIND THE PUMP PANEL. VALVE SHALL BE CONTROLLED FROM PUMP OPERATOR'S PANEL COMPLETE WITH COLOR CODED VALVE POSITION INDICATOR LIGHTS.

ONE (1) AKRON 2-1/2" STRAIGHT SNOOT VALVE (NO ELBOW) SHALL BE LOCATED AT THE RIGHT SIDE REARWARD AREA OF THE PUMP ENCLOSURE AND CONNECTED TO THE DISCHARGE SIDE OF THE PUMP WITH THE VALVE BODY BEHIND THE PUMP PANEL. VALVE SHALL BE CONTROLLED FROM THE PUMP OPERATOR'S PANEL.

ONE (1) AKRON 2" VALVE AND FULL FLOW PLUMBING SHALL BE PIPED TO A 1-1/2" NST MALE SWIVEL ELBOW UNDER CROSSLAY BED NUMBER 1.

ONE (1) AKRON 2" VALVE AND FULL FLOW PLUMBING SHALL BE PIPED TO A 1-1/2" NST MALE SWIVEL ELBOW UNDER CROSSLAY BED NUMBER 2.

2.48 ADAPTERS AND LOOSE PARTS

ONE (1) 3" NST SWIVEL FEMALE X 4-1/2" NST 30 DEGREE ELBOW ADAPTER WITH LONG HANDLED CAP SHALL BE INSTALLED ON THE RIGHT SIDE 3" DISCHARGE.

THE THREE (3) 2-1/2" DISCHARGES ON THE RIGHT SIDE SHALL EACH HAVE A 2-1/2" NST SWIVEL FEMALE X 2-1/2" NST MALE 45 DEGREE CHROME PLATED DISCHARGE ELBOW WITH CHROME CAPS AND CHAIN.

2.49 WATER TANK

THE BOOSTER TANK SHALL BE 200 GALLON CAPACITY, CONSTRUCTED OF POLYPROPYLENE PLASTIC.

THE WATER TANK SHALL BE FABRICATED OF 1/2" THICK, UV STABILIZED, EXTRUDED, COPOLYMER POLYPROPYLENE. THIS MATERIAL HAS BEEN EVALUATED FOR ITS OUTSTANDING PROPERTIES RELATING TO WATER TANK CONSTRUCTION. NO OTHER MATERIAL SHALL BE CONSIDERED!

THE TANK SHALL BE A UNITIZED WELDMENT, INCLUDING THE TANK LIDS, FOR SUPERIOR STRENGTH AND DURABILITY. THERE SHALL BE 2" DIAMETER "LIFTING PEGS" WELDED TO THE TANK INTERIOR BAFFLES AND EXTEND THROUGH AND WELDED TO THE TANK TOP. THESE "LIFTING PEGS" HAVE INTERNAL 1/2"-13 THREADS ALLOWING THE ATTACHMENT OF A LIFTING FRAME FOR THE INSTALLATION OF THE TANK.

THE TANK TRANSVERSE AND LONGITUDINAL BAFFLES SHALL INTERLOCK TO FORM A RIGID INTERNAL GRID ENGINEERED TO MINIMIZE WATER MOVEMENT WHILE THE APPARATUS IS IN

MOTION. THE BAFFLE SYSTEM SHALL BE DESIGNED TO ALLOW THE WATER TO FREE FLOW TO THE TANK TO PUMP VALVE PROVIDING 90% PLUS OF THE TANK WATER CAPACITY. THE BAFFLES PROVIDE FOR UNOBSTRUCTED FILLING ALLOWING THE AIR IN THE TANK TO BE DISPERSED THROUGH THE FILL TOWER. THIS SHALL PERMIT FILLING THE TANK TO CAPACITY WHILE OPERATING AT AN ANGLE. THE TANK SHALL BE BAFFLED IN COMPLIANCE WITH THE LATEST EDITION OF NFPA 1901.

THERE SHALL BE A RECTANGULAR FILL TOWER LOCATED AT FRONT LEFT CORNER OF THE TANK. THE FILL TOWER SHALL ALSO HOUSE THE 4" OVERFLOW VENT PIPE WHICH SHALL EXIT BEHIND THE REAR WHEELS. THERE SHALL BE A REMOVABLE SCREEN IN THE FILL TOWER TO HELP PREVENT CONTAMINATION WHEN FILLING THROUGH THE TOWER. A 3" PLUG SHALL BE INSTALLED AT THE BOTTOM FORWARD EDGE OF TANK FOR CLEANOUT PURPOSES.

THE TANK SHALL SIT ON THE SUBFRAME ASSEMBLY OF THE APPARATUS BODY. THE TANK SHALL BE HELD IN PLACE BY 4" X 1/2" ALUMINUM BLOCKS POSITIONED AROUND THE SUBFRAME TO PREVENT ANY FORE AND AFT, AND SIDE TO SIDE MOVEMENT. THE TANK SHALL BE DESIGNED ON THE FREE FLOATING SUSPENSION PRINCIPAL. THE TANK SHALL HAVE ADEQUATE HOLD DOWN RESTRAINTS TO MINIMIZE VERTICAL MOVEMENT OF THE TANK. THE RESTRAINT SHALL BE FABRICATED OF 3" X 3" X 1/4" ALUMINUM ANGLES AND SHALL BE INSULATED WITH 1/4" POLYPROPYLENE STOCK.

SECTION 3

CUSTOM APPARATUS BODY

3.0 GENERAL CONSTRUCTION

THE APPARATUS BODY AND SUPPORT STRUCTURE SHALL BE DESIGNED TO ALLOW FOR CHASSIS FLEXING DURING ROAD TRAVEL AND AERIAL OPERATIONS. THE MAIN BODY SHALL CONSIST OF A DRIVER AND CURB SIDE COMPARTMENT ASSEMBLIES AND A REAR BODY ASSEMBLY, COMBINED WITH STRUCTURAL COMPONENTS TO ACHIEVE OPTIMIZED LONGEVITY.

IN ORDER TO ELIMINATE DISTORTION CREATED DURING THE WELDING PROCESS, ALL WELDS SHALL BE STITCH TYPE, UTILIZING WIRE FEED PROCESS. HOWEVER, WELDING SHALL NOT BE EMPLOYED IN A MANNER THAT PREVENTS THE READY REMOVAL OF THE BODY FOR SERVICE OR REPAIRS.

3.1 BODY FABRICATION

EACH BODY COMPARTMENT ASSEMBLY SHALL BE MANUFACTURED FROM 1/8" AND 3/16" ALUMINUM, USING MODERN SHEET METAL FABRICATION TECHNIQUES TO ENSURE MAXIMUM LONGEVITY AND CORROSION RESISTANCE.

ALL ENCLOSED COMPARTMENTS SHALL BE VENTILATED THROUGH THE USE OF PUNCHED LOUVERS TO ALLOW EXTERIOR/INTERIOR AIR CIRCULATION.

ALL COMPARTMENT FLOORS SHALL BE ONE-PIECE DESIGN WITH A LOWER DOOR OPENING FLANGE BENT TO PRODUCE A SWEEP OUT DESIGN. A STEP UP FLANGE AT THE DOOR OPENING SHALL NOT ACCEPTABLE, DUE TO DIFFICULTIES IN CLEANING AND ENTRAPPED WATER IN THE RECESSED AREA.

THE TOP SURFACE OF ALL SIDE COMPARTMENT ASSEMBLIES SHALL BE FULLY ENCLOSED WITH THE COMPARTMENT BASE MATERIAL PRIOR TO THE INSTALLATION OF ANY PROTECTION PANELS. ALUMINUM TREADPLATE PROTECTION PANELS THAT ARE USED AS THE ONLY PRIMARY COMPARTMENT TOP SHALL BE UNACCEPTABLE AND SHALL BE REJECTED.

3.2 BODY SUPPORT STRUCTURE

THE BODY SUPPORT STRUCTURE SHALL BE AN ALL-STEEL WELDED FRAMEWORK, CONSISTING OF STRUCTURAL TUBING, FLAT BAR STOCK AND STRUCTURAL ANGLES, WHICH SHALL BE FABRICATED AND BOLTED TO THE TRACTOR FRAME AND THE TORQUE BOX TRAILER FRAME AS AN ASSEMBLY.

THE SIDE BODY COMPARTMENTATION MODULES SHALL BE SUPPORTED BY FORMED "C" TYPE CHANNELS. THESE SUPPORTS SHALL BE WELDED TO THE BODY SUPPORT STRUCTURE AND THE TORQUE BOX TRAILER FRAME. THE BODY SHALL BE BOLTED TO THE SUPPORT STRUCTURE BY THE MEANS OF STAINLESS STEEL HARDWARE. REINFORCEMENT MOUNTING PLATES WHICH ALLOW ADDITIONAL AREA OVER WHICH TO DISTRIBUTE THE COMPARTMENT WEIGHT SHALL BE PROVIDED AS PART OF THE BODY COMPARTMENTATION ASSEMBLY AT EACH MOUNTING POINT LOCATION.

ALL MOUNTING SURFACES SHALL BE FINISHED PAINTED PER THE PAINTING SPECIFICATIONS PRIOR TO INSTALLATION TO PREVENT ELECTROLYSIS OF MATERIALS WHERE FASTENED TO THE MOUNTING LOCATIONS.

3.3 EXHAUST HEAT DEFLECTOR

A STAINLESS STEEL HEAT DEFLECTOR SHALL BE PROVIDED OVER THE EXHAUST PIPING WHERE THE EXHAUST PIPING PASSES BELOW THE APPARATUS BODY.

3.4 COMPARTMENTATION DETAIL

THE APPROXIMATE COMPARTMENT SIZES AND LOCATIONS SHALL BE AS FOLLOWS:

3.5 TRAILER COMPARTMENTS

A COMPARTMENT "C" SHALL BE PROVIDED BEHIND THE FORWARD TRAILER COMPARTMENT, EXTENDING FULL APPARATUS WIDTH UNDER THE TRAILER FRAME. THE MINIMUM COMPARTMENT DIMENSIONS SHALL BE 39.75" WIDE X 43.75" HIGH X 27.50" DEEP IN THE UPPER SECTION, EACH SIDE AND TRANSVERSE IN THE LOWER 14.50" HIGH SECTION UNDER THE TRAILER FRAME. THE MINIMUM DOOR OPENING ON EACH SIDE OF THE APPARATUS SHALL BE 35.00" WIDE X 35.50" HIGH WITH A ROLL-UP STYLE DOOR.

A COMPARTMENT "D" SHALL BE PROVIDED BEHIND THE "C" COMPARTMENT, EXTENDING FULL APPARATUS WIDTH UNDER THE TRAILER FRAME. THE MINIMUM COMPARTMENT DIMENSIONS SHALL BE 80.75" WIDE X 58.25" HIGH X 27.50" DEEP IN THE UPPER SECTION, EACH SIDE AND TRANSVERSE IN THE LOWER 14.50" HIGH SECTION UNDER THE TRAILER FRAME. THE MINIMUM DOOR OPENING ON EACH SIDE OF THE APPARATUS SHALL BE 75.50" WIDE X 49.00" HIGH WITH A ROLL-UP STYLE DOOR.

A COMPARTMENT "E" SHALL BE PROVIDED BEHIND THE "D" COMPARTMENT, EXTENDING FULL APPARATUS WIDTH UNDER THE TRAILER FRAME. THE MINIMUM COMPARTMENT DIMENSIONS SHALL BE 39.75" WIDE X 58.25" HIGH X 27.50" DEEP IN THE UPPER SECTION, EACH SIDE AND TRANSVERSE IN THE LOWER 14.50" HIGH SECTION UNDER THE TRAILER FRAME. THE MINIMUM DOOR OPENING ON EACH SIDE OF THE APPARATUS SHALL BE 35.00" WIDE X 49.00" HIGH WITH A ROLL-UP STYLE DOOR.

A COMPARTMENT "F" SHALL BE PROVIDED BEHIND THE "E" COMPARTMENT, EXTENDING FULL APPARATUS WIDTH UNDER THE TRAILER FRAME. THE MINIMUM COMPARTMENT DIMENSIONS SHALL BE 39.75" WIDE X 58.25" HIGH X 27.50" DEEP IN THE UPPER SECTION, EACH SIDE AND TRANSVERSE IN THE LOWER 14.50" HIGH SECTION UNDER THE TRAILER FRAME. THE MINIMUM DOOR OPENING ON EACH SIDE OF THE APPARATUS SHALL BE 35.00" WIDE X 49.00" HIGH WITH A ROLL-UP STYLE DOOR.

A COMPARTMENT "G" SHALL BE PROVIDED AHEAD OF THE TILLER AXLE, EXTENDING FULL APPARATUS WIDTH UNDER THE TRAILER FRAME. THE MINIMUM COMPARTMENT DIMENSIONS SHALL BE 39.75" WIDE X 28.50" HIGH X 27.50" DEEP IN THE UPPER SECTION, EACH SIDE AND TRANSVERSE IN THE LOWER 14.50" HIGH SECTION UNDER THE TRAILER FRAME. THE MINIMUM DOOR OPENING ON EACH SIDE OF THE APPARATUS SHALL BE 35.00" WIDE X 21.00" HIGH WITH A ROLL-UP STYLE DOOR.

3.6 ROLL-UP COMPARTMENT DOORS

THE APPARATUS BODY SHALL BE PROVIDED WITH ROLL-O-MATIC ROBINSON SHUTTER TYPE ROLL-UP COMPARTMENT DOORS. THE COMPARTMENT DOORS SHALL BE CONSTRUCTED FROM ANODIZED ALUMINUM RECTANGULAR EXTRUSIONS WITH EACH SLAT OF THE DOOR INDIVIDUALLY REPLACEABLE TO REDUCE REPAIR COSTS AND DOWN TIME OF THE VEHICLE.

INNER SEALS BETWEEN EACH SLAT OF THE COMPARTMENT DOOR SHALL PREVENT VIBRATION OF THE COMPARTMENT DOOR AND ASSIST IN PREVENTING DIRT AND WATER FROM ENTERING THE COMPARTMENT.

ONE PIECE EXTRUDED ALUMINUM FLANGES WITH HEAVY DUTY RUBBER SEALS SHALL BE INSTALLED ON EACH SIDE OF THE COMPARTMENT DOOR ASSEMBLY TO ELIMINATE THE SPACE BETWEEN THE COMPARTMENT SIDE WALLS AND THE DOOR ASSEMBLY. THE SIDE EXTRUSIONS SHALL ALSO PROVIDE THE SIDE SLIDE TRACKS OF THE DOOR ASSEMBLY FOR SMOOTH OPERATION WITHOUT BINDING. AN EXTRUDED ALUMINUM DRIP RAIL WITH INTERNAL RUBBER SEAL SHALL BE PROVIDED ALONG THE TOP EDGE OF THE COMPARTMENT DOOR. IN ADDITION,

A BOTTOM DOOR SEAL SHALL BE INSTALLED TO PROVIDE A FULLY WEATHERPROOF COMPARTMENT.

A FULL WIDTH ALUMINUM LIFT/LATCH BAR SHALL BE PROVIDED ON THE DOOR ASSEMBLY WITH A BAR CATCH INSTALLED ON EACH SIDE OF THE SIDE TRACK EXTRUSION SECTIONS. A HEAVY DUTY ALUMINUM ANGLE SHALL BE INSTALLED DIRECTLY ABOVE THE LIFT BAR TO ASSIST IN THE CLOSING OF THE COMPARTMENT DOOR AND TO ENSURE DOOR OPERATION WITH ONE HAND.

EACH ROLL-UP COMPARTMENT DOOR SHALL HAVE A SATIN FINISH.

3.7 OUTRIGGER CONTROL STATION DOOR

A POLISHED STAINLESS STEEL DOOR SHALL BE PROVIDED AT EACH OUTRIGGER CONTROL STATION. EACH DOOR SHALL BE FURNISHED WITH A TRIGGER LATCH.

3.8 LOWER DOOR OPENING PROTECTION TRIM

THE LOWER DOOR OPENING OF EACH BODY SIDE COMPARTMENT SHALL HAVE A BRUSHED STAINLESS STEEL EDGE TRIM. THE TRIM SHALL PROTECT THE APPARATUS PAINT FROM BEING MARKED-UP WHEN REMOVING OR REPLACING THE FIREFIGHTING EQUIPMENT STORED IN THE COMPARTMENT.

3.9 STOKES BASKET STORAGE

AN ALUMINUM TREADPLATE STOKES BASKET STORAGE BOX SHALL BE MOUNTED ABOVE THE "C" COMPARTMENT. THE ALUMINUM TREADPLATE STOKES BASKET BOX SHALL BE EQUIPPED WITH A STAINLESS STEEL HINGE AND A BLACK VINYL COVER.

3.10 AIR CYLINDER STORAGE COMPARTMENTS

SPARE AIR CYLINDER STORAGE COMPARTMENTS SHALL BE RECESSED INTO THE APPARATUS BODY. EACH COMPARTMENT SHALL INCLUDE A HINGED, CAST ALUMINUM DOOR WITH LATCH, CIRCULAR INNER COMPARTMENT TUBE, AND RUBBER FLOOR MAT.

A NYLON AIR BOTTLE SAFETY STRAP SHALL BE INSTALLED IN EACH OF THE AIR BOTTLE STORAGE COMPARTMENTS.

AIR CYLINDER STORAGE COMPARTMENTS SHALL BE PROVIDED AS FOLLOWS:

ONE (1) EACH SIDE OF THE DRIVERS SIDE TRAILER WHEELWELL PANEL.

ONE (1) EACH SIDE OF THE CURB SIDE TRAILER WHEELWELL PANEL.

3.11 FUEL FILL

A 2-1/8" FUEL FILL TUBE WITH FILL CAP SHALL BE PROVIDED THROUGH THE SIDE PANEL OF THE TRACTOR TO THE REAR OF THE TRACTOR REAR WHEEL ON EACH SIDE. THE FUEL FILL SHALL BE LABELED "DIESEL FUEL ONLY".

3.12 REAR BODY MODULE

THE REAR STRUCTURE SHALL BE FABRICATED AS AN INTEGRAL PART OF THE REAR BODY TO REDUCE DEFLECTION, AND SHALL PROVIDE STRUCTURAL SUPPORT FOR THE REAR BODY COMPARTMENT ASSEMBLIES.

ONE (1) 3/16" ALUMINUM ALLOY PLATE, OVERLAPPING BEVELED EDGE STYLE HORIZONTALLY HINGED DOOR WITH 1/8" ALUMINUM PAN SHALL BE PROVIDED AT THE REAR OF THE APPARATUS TO ASSIST IN KEEPING DIRT FROM DRAFTING INTO THE REAR GROUND LADDER/STORAGE AREA AND RESTRICT GROUND LADDER MOVEMENT. A PLIABLE NEOPRENE WEATHER STRIPPING WILL BE INSTALLED TO FORM A COMPRESSION SEAL. EBERHARD #D-206, AUTOMOTIVE STYLE SLAM LATCHES, WITH 6" STAINLESS STEEL "D" RING TYPE HANDLE WITH 10 DEGREE BREAK SHALL BE PROVIDED. TWO (2) GAS FILLED ASSIST LIFT CYLINDERS WILL BE OF ADEQUATE SIZE TO MAINTAIN DOOR IN STABLE OPEN POSITION. DOOR ASSIST CYLINDERS WILL NOT INTERFERE WITH EQUIPMENT LOADING OR UNLOADING. EXTERIOR OF DOOR SHALL BE PAINTED TO MATCH LOWER BODY COLOR. INTERIOR PAN SHALL BE A "DA" FINISH.

ONE (1) 3/16" ALUMINUM TREADPLATE DROP DOWN DOOR SHALL BE PROVIDED AT THE CENTER REAR OF THE APPARATUS FOR THE REAR "R" COMPARTMENT. THE DOOR SHALL BE PROVIDED WITH A "D" HANDLE STYLE LATCH ASSEMBLY.

3.13 TRACTOR REAR WHEELWELLS

THE TRACTOR REAR WHEELWELL SHALL HAVE A ONE-PIECE FULL WIDTH WRAPAROUND WHEELWELL LINER WITH EXTENDED RADIUSED FENDERETTE. THE WHEELWELL TOP SURFACE SHALL BE COVERED WITH ALUMINUM TREADPLATE FOR FINISH PROTECTION. THE WHEELWELL LINER AND COVER SHALL BE BOLTED TO THE BODY TO PERMIT EASY REMOVAL FOR SERVICE AND MAINTENANCE. AMPLE CLEARANCE SHALL BE PROVIDED BETWEEN THE TIRE AND WHEELWELL LINER FOR THE USE OF TIRE CHAINS. FENDERETTE SHALL BE POLISHED STAINLESS STEEL.

3.14 TRAILER FENDER/WHEELWELL

EACH TRAILER FENDER/WHEELWELL SHALL HAVE A ONE-PIECE FULL WIDTH WRAPAROUND WHEELWELL LINER WITH EXTENDED RADIUSED FENDERETTE. THE WHEELWELL LINER SHALL BE BOLTED TO THE BODY TO PERMIT EASY REMOVAL FOR SERVICE AND MAINTENANCE. AMPLE CLEARANCE SHALL BE PROVIDED BETWEEN THE TIRE AND WHEELWELL LINER. FENDERETTE SHALL BE POLISHED STAINLESS STEEL.

3.15 ALUMINUM TREADPLATE

ALL ALUMINUM TREADPLATE INSTALLED ON THE APPARATUS BODY SHALL BE "BRIGHT FINISH" WITH A MINIMUM 1/8" THICKNESS. FOR CORROSION RESISTANCE, ALUMINUM TREADPLATE SHALL NOT BE INSTALLED PRIOR TO PAINT AS DESCRIBED IN THE PAINTING SECTION OF THIS SPECIFICATION.

ALUMINUM TREADPLATE SHALL BE INSTALLED IN THE FOLLOWING AREAS: ENTIRE REAR SURFACE OF THE APPARATUS, TOP OF THE TRACTOR COMPARTMENT ASSEMBLY, FLANGED OUT 60 DEGREES TO FORM A DRIP EDGE OVER THE COMPARTMENT DOORS, REAR WALL OF THE FORWARD TRACTOR COMPARTMENT, TOP OF THE SIDE RUNNINGBOARD COMPARTMENTS, FLANGED OUT 60 DEGREES TO FORM A DRIP EDGE OVER THE COMPARTMENT DOORS, SKIRTING PANELS AROUND TRACTOR REAR WHEELWELLS AND 5TH WHEEL AREA, TOP OF TRAILER BODY TOP DECK FORWARD OF TURNTABLE, ON THE VERTICAL SURFACES OF THE TRAILER BODY, BEHIND THE ACCESS STEPS TO THE TILLER CAB AND TOP OF THE ENTIRE LENGTH OF THE GROUND LADDER STORAGE AREA.

3.16 HANDRAILS BODY

HANDRAILS SHALL BE CONSTRUCTED OF 1-1/4" DIAMETER HEAVY DUTY POLISHED EXTRUDED ALUMINUM TUBING WITH RUBBER GRIPS WITH POLISHED CHROME-PLATED BRASS MOUNTING BRACKETS.

HANDRAILS SHALL BE LOCATED AS FOLLOWS:

TWO (2) 12" LONG STRAIGHT HANDRAILS SHALL BE PROVIDED ON TOP OF THE TRACTOR COMPARTMENT FOR ACCESS THE TURNTABLE, ONE (1) EACH SIDE.

TWO (2) 18" LONG STRAIGHT HANDRAILS SHALL BE INSTALLED ON THE OUTSIDE, FORWARD CORNERS OF THE TILLERMAN CAB, ONE (1) EACH SIDE.

FOUR (4) 36" LONG LOOPED HANDRAILS SHALL BE INSTALLED AT THE REAR OF THE TRAILER BODY FOR ACCESS TO THE TILLER CAB, TWO (2) EACH SIDE.

3.17 STEPS

AN "A" FRAME TYPE ACCESS LADDER ARRANGEMENT SHALL BE PROVIDED AFT OF THE TRACTOR COMPARTMENT, EACH SIDE, FOR ACCESS TO THE TURNTABLE. THE STEPS SHALL BE CONSTRUCTED OF FORMED 3/16" ALUMINUM TREADPLATE, EACH MEASURING 14" WIDE X 8" DEEP.

SIX (6) FORMED 3/16" ALUMINUM TREADPLATE STEPS (18" WIDE) SHALL BE PROVIDED AT THE REAR OF THE TRAILER BODY FOR ACCESS TO THE TILLER CAB, THREE (3) EACH SIDE. THE BOTTOM STEP SHALL BE 12" DEEP; THE MIDDLE STEP SHALL BE 9" DEEP; AND THE TOP STEP SHALL BE 6" DEEP.

3.18 OUTRIGGER COVERS

HIGHLY POLISHED STAINLESS STEEL OUTRIGGER COVERS SHALL BE PROVIDED. THE OUTRIGGER COVERS SHALL BE NO WIDER THAN 15 INCHES SO AS NOT TO PROHIBIT EXTENSION OF THE OUTRIGGER BETWEEN PARKED CARS.

3.19 OUTRIGGER PAD STORAGE SLIDES

TWO (2) AUXILIARY OUTRIGGER PAD STORAGE SLIDE ASSEMBLIES TO HOLD TWO (2) AUXILIARY OUTRIGGER PADS WITH LOCKING DEVICES SHALL BE PROVIDED. THE STORAGE SLIDES SHALL BE LOCATED UNDER THE APPARATUS, ONE (1) EACH SIDE AS CLOSE TO THE OUTRIGGER AS DESIGN ALLOWS. THE SLIDES SHALL BE CONSTRUCTED OF U.H.M.W. NYLON ASSEMBLIES WITH BODY MATERIAL MOUNTING ANGLES.

3.20 GROUND LADDER STORAGE

GROUND LADDERS SHALL BE STORED IN THE CENTER OF THE APPARATUS BODY OVER THE CENTER OF THE TRAILER FRAME AREA, UNLESS OTHERWISE NOTED. THE LADDERS SHALL BE ENCLOSED WITHIN THE BODY. THE LADDERS SHALL BE STORED IN THE VERTICAL POSITION ON TEFLON SLIDES WITH ACCESS FROM THE REAR OF THE APPARATUS.

3.21 GROUND LADDER LOCKS

A HEAVY-DUTY DROP DOWN STAINLESS STEEL HINGED TYPE GROUND LADDER LOCK ASSEMBLY WITH SPRING LOADED MANUALLY OPERATED CATCH SHALL BE PROVIDED FOR THE GROUND LADDERS. THE LADDER LOCK SHALL BE LOCATED AT THE REARWARD END OF EACH GROUND LADDER AND SHALL PREVENT THE LADDER FROM MOVING FORE AND AFT. EACH STAINLESS STEEL DROP DOWN LADDER LOCK SHALL BE LABELED TO REFLECT THE GROUND LADDER LENGTH WHEN IN THE CLOSED POSITION.

3.22 PIKE POLE STORAGE

PIKE POLE STORAGE SHALL BE PROVIDED IN THE REAR OF A ALUMINUM TREADPLATE HINGED DROP DOWN DOOR IN THE CENTER OF THE TRAILER FRAME, UNLESS OTHERWISE NOTED. ACCESS TO THE PIKE POLES SHALL BE FROM THE REAR OF THE APPARATUS. EACH PIKE POLE SHALL BE STORED IN INDIVIDUAL, PROPERLY LABELED, 2.25" DIAMETER ALUMINUM TUBES.

3.23 REAR TOW DEVICES

TWO (2) REAR HEAVY DUTY STEEL TOW PLATES SHALL BE PROVIDED, ONE (1) EACH SIDE, WELDED DIRECTLY TO THE CHASSIS TORQUE BOX FRAME. THE TOW PLATES SHALL BE 1" THICK WITH 3" HOLE IN THE CENTER OF THE PLATE WITH CHAMFERED EDGES. THE TOW PLATES SHALL BE PAINTED RED IN COLOR.

3.24 TILLERMAN'S DRIVING LIGHTS

TWO (2) ZIAMATIC HULL LIGHTS (BOAT DOCKING STYLE) SHALL BE MOUNTED IN TRAILER WHEELWELL PANEL, ONE FORWARD FACING, ONE REARWARD FACING ON EACH SIDE, AS A

DRIVING AID FOR THE TILLERMAN. REARWARD FACING LIGHTS SHALL BE CONTROLLED BY THE TRANSMISSION PLACED IN REVERSE. FORWARD FACING LIGHTS SHALL BE CONTROLLED BY TWO (2) CLAMSHELL FOOT PAD CONTROL SWITCHES LOCATED ON TILLER CAB FLOOR, ONE (1) FOR LEFT SIDE AND ONE (1) FOR RIGHT SIDE.

3.25 TILLER CAB

A PERMANENTLY MOUNTED, FULLY ENCLOSED TILLER CAB SHALL BE PROVIDED AT THE REAR OF THE APPARATUS. THE CAB SHALL BE ARRANGED TO PROVIDE MAXIMUM VISIBILITY FOR MANEUVERING THE APPARATUS. THE CAB SHALL BE CONSTRUCTED OF 0.125" THICK ALUMINUM FOR WEIGHT REDUCTION. THE CAB FLOOR SHALL BE COVERED WITH ALUMINUM TREADPLATE. THE FORWARD SECTION OF THE CAB FLOOR SHALL BE ANGLED UPWARD AND FABRICATED OF ALUMINUM TREADPLATE TO PROVIDE MAXIMUM FOOT LEVERAGE FOR THE TILLERMAN.

THE FRONT WINDSHIELD SHALL BE DESIGNED FOR MAXIMUM DRIVER VISIBILITY. THE GLASS SHALL BE D.O.T. APPROVED AS-1 LAMINATED AUTOMOTIVE SAFETY GLASS. THE FRONTAL GLASS AREA SHALL BE 1600 SQ. IN., MINIMUM. THE WINDSHIELD DESIGN SHALL ALLOW EASY REPLACEMENT IN THE FIELD USING COMMONLY AVAILABLE FROM LOCAL SOURCES. PROPIERTARY WINDSHIELD DESIGNS SHALL NOT BE ACCEPTABLE.

THE CAB SHALL BE PROVIDED WITH A CENTER MOUNTED DRIVER'S PEDESTAL, WHICH CONTAINS ALL NECESSARY CONTROLS, INDICATING LIGHTS AND SWITCHES. THE DASH AREA OF THE PEDESTAL SHALL NOT EXCEED 21-INCHES IN WIDTH TO PROVIDE MAXIMUM VISIBILITY FOR THE TILLER DRIVER.

THE DASH SHALL CONTAIN WINDSHIELD WIPER CONTROLS, 2" DIAMETER INDICATOR LIGHT FOR "APPROACHONG JACKKNIFE POSITION", 2" DIAMETER TURN SIGNAL INDICATORS, ROCKER SWITCHES AS REQUIRED, CAB-TO-CAB BUZZER AND HEATER CONTROLS.

THE CAB SHALL BE PROVIDED WITH AN INSULATED UPHOLSTERED HEADLINER. THE HEADLINER SHALL REDUCE SOLAR HEAT GAIN INTO THE CAB AND INCREASE THE EFFICIENCY OF THE HEATER SYSTEM.

A RED/WHITE DOME LAMP, WITH ON/OFF SWITCH TO BE LOCATED IN CENTER OF CAB ROOF.

ONE (1) 6" DIAMETER DEFROSTER FAN WITH SWIVEL BASE AND SWITCH SHALL BE LOCATED ON REAR CORNER OF CAB ROOF.

A TWO-POINT SEAT BELT WITH AUTOMATIC RETRACTOR AND "KOMFORT LOCK" FEATURE SHALL BE PROVIDED FOR THE TILLER SEAT.

THE STEERING COLUMN SHALL BE PROVIDED WITH A TILT AND TELESCOPIC FEATURE. THE STEERING WHEEL SHALL BE 20.00" DIAMETER TWO-SPOKE PADDED TYPE.

THE CAB SHALL BE EQUIPPED WITH REAR SLIDING DOORS FOR ACCESS IN AND OUT OF THE TILLER CAB. THE DOORS SHALL BE PROVIDED WITH AUTOMOTIVE LATCHING.

THE DOORS SHALL BE FURNISHED WITH DROP-DOWN WINDOWS. EACH DOOR GLASS AREA SHALL BE 36-INCHES BY 39-INCHES (1404SQ IN) MINIMUM. THE OPEN WINDOW AREA SHALL BE 16-INCHES BY 36-INCHES (576SQ IN) FOR VENTILATION, WHEN OPEN FOR VENTILATION.

THE REAR WALL OF THE CAB SHALL BE PROVIDED WITH A VERTICALLY OPENING WINDOW FOR MAXIMUM VENTILATION. THE WINDOW SHALL BE OF THE SAME DESIGN AS THE SIDE DOOR WINDOWS. THE GLASS AREA SHALL BE 29.00" WIDE BY 26.50" HIGH (768 SQ. IN.) AND AN OPENING OF 10.00" BY 29.50" (295 SQ IN) FOR VENTILATION.

3.26 HANDRAILS

EACH DOOR SHALL BE FURNISHED WITH A FULL LENGTH INTERIOR HANDRAIL, POSITIONED FOR CLOSING THE CAB DOORS.

AN EXTERIOR AND INTERIOR GRAB HANDLE SHALL BE LOCATED ON EACH SIDE OF THE TILLER CAB AT THE TOP FORWARD CORNER OF THE WINDSHIELD TO AID THE TILLERMAN IN ENTERING AND EXITING THE CAB.

3.27 WIPERS/MIRRORS

A TWO-SPEED ELECTRIC WINDSHIELD WITH DELAY SHALL BE PROVIDED FOR THE EXTERIOR SURFACE OF THE FRONT WINDSHIELD. A WINDSHIELD WASHER SYSTEM WITH A 2 QUART (MINIMUM) RESERVOIR SHALL BE PROVIDED. THE WIPER MOTOR SHALL BE ACCESSIBLE FOR SERVICE THROUGH AN ACCESS PANEL ON THE FRONT FACE OF THE CAB.

TWO (2) 8" DIAMETER REAR VIEW CONVEX MIRRORS SHALL BE PROVIDED TO AID THE TILLERMAN WHILE MANEUVERING. THE MIRRORS SHALL BE MOUNTED TO OBTAIN THE MAXIMUM VIEWING AREA FOR THE TILLERMAN.

3.28 SUN VISOR

A DOUBLE HINGED TINTED PLEXIGLASS SUN VISOR SHALL BE PROVIDED FOR THE FRONT WINDSHIELD.

3.29 SAFETY TRANSMISSION ENGAGE SYSTEM

A SAFETY TRANSMISSION ENGAGE SYSTEM SHALL BE PROVIDED TO PREVENT THE MOVEMENT OF THE APPARATUS UNLESS THE TILLER DRIVER IS IN THE TILLER SEAT. THE CIRCUIT SHALL BE ARRANGED SO THAT THE TILLER DRIVER IS REQUIRED TO ACTUATE A FOOT SWITCH IN THE TILLER CAB. THE FOOT SWITCH CLOSES THE CIRCUIT ALLOWING THE DRIVER TO ENGAGE THE TRANSMISSION OF THE APPARATUS.

3.30 COMMUNICATION SYSTEM

TWO (2) FIRECOM HEADSET STATION JACKS SHALL BE SUPPLIED IN THE TILLER CAB FOR COMMUNICATION BETWEEN THE TILLER OPERATOR AND THE APPARATUS DRIVER.

3.31 TILLER CAB SEAT

A BOSTROM SIERRA TORSION 280RX LOW BACK MECHANICAL SEAT SHALL BE PROVIDED FOR THE TILLERMAN. THE SEAT SHALL BE ADJUSTABLE FOREWARD AND AFT. THE SEAT SHALL BE COVERED WITH PACIFICA GRAY VINYL UPHOLSTEY.

3.32 HEATER/DEFROSTER/AIR CONDITIONING

THE TILLER CAB SHALL BE EQUIPPED WITH A COMBINATION HEATER/DEFROSTER/AIR CONDITIONING UNIT. THE HEATING ELEMENTS, EVAPORATOR AND CIRCULATING FAN SHALL BE HOUSED IN THE OVERHEAD AREA OF THE TILLER CAB. THE UNIT SHALL NOT INCREASE THE HEIGHT OF THE CAB OR SACRIFICE THE HEAD ROOM AVAILABLE TO THE DRIVER.

THE POWER FOR THE HEATING ELEMENTS SHALL BE SUPPLIED BY AN ONBOARD 115 VOLT 60HZ SINGLE PHRASE POWER SOURCE. THE REFRIGERANT IN THE AIR CONDITIONING SYSTEM SHALL BE ENVIRONMENTALLY FRIENDLY R-134A. THE EVAPORATOR AND COMPRESSOR ASSEMBLY SHALL BE REMOTELY MOUNTED ON THE TILLER TRAILER. AN AUTOMATIC DIGITAL THERMOSTAT WITH ON-OFF CONTROL AND TEMPERATURE CONTROL SHALL BE MOUNTED ON THE DASH.

ELECTRICAL POWER FOR THE HEATER/DEFROSTER/AIR CONDITIONING SHALL BE DRAWN FROM THE CHASSIS 12V DC SYSTEM AND A 115V AC ON-BOARD POWER SOURCE

3.33 TILLER CAB PAINT

TOP OF CAB SHALL BE PAINTED WHITE AND PAINT BREAK AT DRIP RAIL. LOWER PORTION OF CAB TO BE PAINTED RED.

3.34 TILLER TRAINING SEAT

A MECHANISM FOR ATTACHING A TRAINING SEAT NEXT TO TILLER CAB SHALL BE DISCUSSED AT PRE-CONFERENCE MEETING.

3.35 HOSE TRAY

A HOSE TRAY SHALL BE PROVIDED ON THE TOP OF THE GOOSENECK ABOVE THE OUTRIGGER CONTROL STATIONS WITH PAY-OUT FROM EITHER SIDE.

THE HOSE TRAY SHALL BE CONSTRUCTED OF FORMED 1/8" ALUMINUM DIAMOND TREADPLATE MATERIAL.

THE HOSE TRAY SHALL HAVE A CAPACITY TO CARRY 250 FEET OF 2-1/2 INCH HOSE.

3.36 ELECTRICAL WIRING-BODY

AN INDEPENDENT MANUFACTURED WIRING HARNESS SHALL BE PROVIDED FOR ALL ELECTRICAL CIRCUITS OF THE BODY. ALL BODY WIRING SHALL BE NUMBER AND COLOR CODED FOR EASE OF IDENTIFICATION. ELECTRICAL CONNECTORS SHALL BE OF THE CRIMP TYPE. THE WIRING SHALL BE RUN IN BRAIDED LOOMS OR CONDUIT TO PROTECT FROM HEAT, OIL, WATER AND MECHANICAL DAMAGE. RUBBER GROMMETS SHALL BE PLACED AT ALL POINTS WHERE WIRING OR LOOMS PASS THROUGH BODY PANELS.

AN ELECTRICAL DC DISTRIBUTION PANEL BOARD COMPARTMENT ASSEMBLY SHALL BE LOCATED TO THE REAR OF THE "C" BODY COMPARTMENT ON THE RIGHT SIDE OF THE APPARATUS AND SHALL BE ACCESSIBLE THROUGH A ACCESS PANEL WHICH SHALL COVER THE PANEL ENCLOSURE ASSEMBLY. THE PANEL BOARD SHALL PROVIDE DC ELECTRIC TO THE ELECTRICAL CIRCUITS ASSOCIATED WITH THE APPARATUS BODY WIRING. ALL BODY ELECTRICAL CIRCUITS SHALL BE PROTECTED BY CORRECTLY SIZED THERMAL CIRCUIT BREAKERS.

3.37 COMPARTMENT GRATING

RED DRI-DEK SELF-DRAINING INTERLOCKING VINYL TILES, WITH BEVELED EDGE CAPS, SHALL BE PROVIDED ON THE FLOOR, SHELVES AND TRAYS OF EACH ENCLOSED COMPARTMENT.

3.38 SHELVING

FIFTEEN (15) SHELVES SHALL BE PROVIDED. THE SHELVES SHALL BE CONSTRUCTED OF 3/16" SMOOTH ALUMINUM SHEETS. THE FRONT AND REAR EDGES SHALL BE FORMED UP 2". ADJUSTABLE SHELVES SHALL BE MOUNTED ON ADJUSTABLE TRACK TYPE CHANNELS TO PROVIDE HEIGHT ADJUSTMENT WITH SIMPLE STANDARD HAND TOOLS.

3.39 TRAYS, 500 POUND CAPACITY

SEVEN (7) FLOOR MOUNTED TRAYS SHALL BE PROVIDED. THE TRAYS SHALL BE CONSTRUCTED OF 3/16" SMOOTH ALUMINUM SHEETS WITH AT LEAST A 3" LIP FORMED AROUND THE PERIMETER AND THE CORNERS WELDED. TRAYS SHALL BE MOUNTED ON FULL EXTENSION BALL BEARING SLIDES MOUNTED TO SIDES OF TRAYS WITH A MINIMUM RATING OF 500# PER PAIR. A POSITIVE PRESSURE HOLD OPEN/CLOSE DEVICE SHALL BE MOUNTED ON THE UNDERSIDE SURFACE OF THE TRAY TO HOLD THEM IN BOTH THE FULLY EXTENDED AND FULLY RETRACTED POSITIONS.

3.40 BODY WARNING LIGHTS

TWO (2) WHELEN B6R BEACONS WITH ONE (1) RED AND ONE (1) AMBER LENS BLACKED OUT TO FRONT SHALL BE INSTALLED ON THE UPPER REAR CORNERS OF THE APPARATUS BODY. EACH LIGHT SHALL HAVE A WHITE LED LIGHT IN THE LOWER SECTION FACING OUTWARD.

FOUR (4) WHELEN 6E RED LENS LED LIGHTS SHALL BE INSTALLED TWO (2) EACH LOWER SIDE OF THE APPARATUS. LAMPS SHALL BE INSTALLED WITH WHELEN 6E CHROME PLATED FLANGES.

TWO (2) WHELEN 6E RED LENS LED LIGHTS SHALL BE INSTALLED ONE (1) EACH SIDE ON THE OUTRIGGER COVERS. LAMPS SHALL BE INSTALLED WITH WHELEN 6E CHROME PLATED FLANGES.

TWO (2) WHELEN 6E RED LENS LED LIGHTS SHALL BE INSTALLED ABOVE THE STOP/TAIL/TURN SIGNALS. LAMPS SHALL BE INSTALLED IN POLISHED ALUMINUM SPACER CASTINGS.

3.41 COMPARTMENT & STEP LIGHTS

TWO (2) WHELEN STRIP LITE LED INTESITY LEVEL 1, WITH AUTOMATIC DOOR SWITCH, SHALL BE LOCATED ON THE SIDES OF EACH ENCLOSED COMPARTMENT. THE LIGHTS SHALL BE CONTROLLED BY A SWITCH IN THE CORNER OF EACH COMPARTMENT OPENING AND WIRED TO THE COMPARTMENT OPEN LIGHT IN THE CAB.

TWO (2) WHELEN PAR 16 COMPARTMENT LIGHTS, WITH AUTOMATIC DOOR SWITCH, SHALL BE PROVIDED IN THE ENCLOSED GROUND LADDER STORAGE AREA(S).

ONE (1) WELDON MODEL #2025-7190-30, 2.50" X 6.0" HOODED LIGHT SHALL BE INSTALLED, UNDER THE TOP STEP OF THE A-FRAME INSTALLED ON THE TRACTOR TO ILLUMINATE THE A-FRAME STYLE STEPS LEADING TO THE TURNTABLE OF THE AERIAL DEVICE. THESE LIGHTS SHALL BEACTIVATED WHEN THE AERIAL PTO IS PLACED INTO GEAR.

ONE (1) ARROW MODEL #437-08-332 CHROME PLATED HOOD STEP LIGHT SHALL BE INSTALLED UNDER EACH STEP LEADING TO THE TILLER CAB. THESE LIGHTS SHALL BE ACTIVATED BY PARKING BRAKE SWITCH.

3.42 ICC LIGHTING-BODY

TWO (2) TRUCK-LITE AMBER LED COMBINATION TURN/CLEARANCE LIGHTS SHALL BE MOUNTED ON THE BODY SIDES FRONT OF OUTRIGGERS ONE (1) EACH SIDE. EACH LIGHT SHALL BE PROVIDED WITH A REFLECTOR STYLE LENS ASSEMBLY. THESE LIGHTS SHALL BE WIRED TO THE TURN SIGNAL CONTROL CIRCUIT, FOUR-WAY FLASHER CIRCUIT, AND THE HEADLIGHT SWITCH CIRCUIT IN THE CAB.

TWO (2) DIALIGHT SERIES 15 RED LED CLEARANCE LIGHTS AND TWO (2) ARROW RED REFLECTORS SHALL BE MOUNTED BELOW THE REAR OF THE APPARATUS, ONE (1) EACH SIDE.

FIVE (5) DIALIGHT SERIES 15 RED LED CLEARANCE LIGHTS AND TWO (2) ARROW RED REFLECTORS SHALL BE MOUNTED BELOW THE REAR OF THE APPARATUS.

TWO (2) BRITAX RED/AMBER CLEARANCE SHALL BE MOUNTED AT THE LOWER REAR CORNER OF THE BODY, ONE (1) EACH SIDE.

TWO (2) DECK MOUNTED DIALIGHT SERIES 15 AMBER LED CLEARANCE LIGHTS SHALL BE MOUNTED DIRECTLY ABOVE THE TILLER STEERING AXLE ONE (1) EACH SIDE.

ALL CLEARANCE LIGHTS ON THE APPARATUS BODY SHALL BE ACTIVATED BY THE HEADLIGHT SWITCH.

3.43 REAR WORK LIGHTS

TWO (2) ARROW MODEL #437-08-332 CHROME-PLATED HOODED LIGHTS, SHALL BE PROVIDED TO ILLUMINATE THE REAR BODY PANEL, ONE (1) EACH SIDE.

TWO (2) COLLINS FX-12 COMBINATION SPOT/FLOOD LIGHTS LOCATED ON REAR SIDE OF BODY BELOW B6R BEACONS.

REAR WORK LIGHTS SHALL BE ACTIVATED BY A ROCKER SWITCH LOCATED IN CAB CENTER CONSOLE.

3.44 UNDERBODY LIGHTS

TWELEVE WHELEN PAR 16 LED CLEAR LENS UNDERBODY WORKLIGHTS SHALL BE INSTALLED UNDER THE BODY AROUND THE PERIMETER OF THE VEHICLE. THE LIGHTS SHALL BE STRATEGICALLY PLACED TO ILLUMINATE THE IMMEDIATE GROUND AREA AROUND THE UNIT.

THE LIGHTING UNDER THE DRIVER AND CREW RIDING AREA EXITS SHALL BE ACTIVATED AUTOMATICALLY WHEN THE EXIT DOORS ARE OPENED. ALL OTHER LIGHTS SHALL BE SWITCHED ON INSIDE THE CAB ON THE CAB SWITCH PANEL. THESE LIGHTS SHALL BE INSTALLED IN COMPLIANCE WITH NFPA 1901.

3.45 DECK LIGHTS

THERE SHALL BE TWO (2) COLLINS FX-12 HOSE BED PICKUP LIGHTS INSTALLED. THE LIGHTS SHALL BOTH BE EQUIPPED WITH SPOT/FLOOD BULBS, AND SHALL BE MOUNTED ONE EACH SIDE ON THE REAR HOSE BED STANCHIONS. THE LIGHTS SHALL BE INDIVIDUALLY SWITCHED AT EACH LIGHT HEAD.

3.46 LICENSE PLATE LIGHT

A LICENSE PLATE BRACKET AND LIGHT SHALL BE INSTALLED ON THE REAR OF THE VEHICLE. IT SHALL BE LOCATED AT THE LEFT SIDE OF THE VEHICLE TOWARDS ROAD SIDE CENTER, AND SHALL BE WIRED TO COME ON WITH THE HEADLIGHTS.

3.47 STOP, TURN, AND BACK-UP LIGHTS

INSTALL WHELEN 64 SERIES LIGHTS IN WHELEN CAST4 POLISHED CAST ALUMINUM TRIPLE LAMP BEZELS, ONE (1) EACH SIDE ON THE LOWER REAR BODY CORNERS. EACH BEZEL SHALL BE MOUNTED WITH CLOSED CELL NEOPRENE MOLDING AROUND THE FULL PERIMETER CONTACT SURFACE AREA OF THE BODY TO SEAL OUT MOISTURE AND ELIMINATE

ELECTROLYSIS. THE TAIL LAMPS SHALL BE INSTALLED IN THE FOLLOWING DESCENDING ORDER:

TOP	RED LED STOP/TAIL LIGHT
CENTER	AMBER LED ARROW TURN SIGNALS
BOTTOM	CLEAR LENS LED MAXIMUM INTENSITY BACK-UP

3.48 ARROWSTIK

A CODE 3 ARROWSTIK AS-3 TRAFFIC-DIRECTING LIGHT SHALL BE RECESSED INTO THE BACK OF THE TILLER CAB. THE LIGHT SHALL HAVE A SOLID STATE CONTROL HEAD WITH READOUT LIGHTS THAT "ECHO" THE PATTERN OF THE SIGNALS. THE DEVICE SHALL HAVE FOUR (4) MODES OF OPERATION: ARROW LEFT, ARROW RIGHT, CENTER OUT, AND FLASH. THE CONTROL SHALL BE LOCATED IN THE CAB, ADJACENT TO THE SWITCH CONTROL PANEL.

3.49 BACK-UP ALARM

A PRECO MODEL 1040 AUTOMATIC SELF-ADJUSTING ELECTRONIC BACK-UP ALARM PRODUCING 87-112 DB SHALL BE INSTALLED AT THE REAR OFTHE CHASSIS BETWEEN THE FRAME RAILS. IT SHALL OPERATE WHENEVER REVERSE GEAR IS SELECTED.

3.50 TRAILER "JACKNIKE" WARNING SYSTEM

A 2" DIAMETER AMBER LIGHT SHALL BE INSTALLED IN THE CAB THAT SHALL FLASH WHEN THE TRAILER IS AT A 60 DEGREE ANGLE TO THE CAB. A 2" DIAMETER RED LIGHT SHALL BE INSTALLED IN THE CAB THAT SHALL FLASH WHEN THE TRAILER IS AT A 90 DEGREE ANGLE TO THE CAB. BOTH LIGHTS SHALL BE MOUNTED IN A POSITION CLEARLY VISIBLE TO THE DRIVER, OFFICER AND TILLERMAN SEATING POSITIONS.

3.51 HYDRAULIC GENERATOR

A HARRISON 10.0MAS-16R, 10,000 WATT HYDRAULIC DRIVEN 120/240 VOLT GENERATOR SHALL BE INSTALLED ON THE APPARATUS. GENERATOR SHALL PRODUCE SINGLE PHASE POWER AT 60 HZ. LOCATION TO BE DETERMINED. THE TOP OF THE GENERATOR ENCLOSURE SHALL BE INSTALLED WITH AN EASILY REMOVABLE ALUMINUM TREADPLATE AND STAINLESS STEEL OPEN GRATE MATERIAL CAPABLE OF SUPPORTING WEIGHT OF PERSONNEL.

THE SYSTEM SHALL UTILIZE ONE OF THE CHASSIS TRANSMISSION PTO OUTLETS TO POWER A PRESSURE COMPENSATED HYDRAULIC PUMP ASSEMBLY. THE HYDRAULIC OUTPUT OF THE HYDRAULIC PUMP ASSEMBLY SHALL POWER THE MODULAR HYDRAULIC MOTOR-GENERATOR ASSEMBLY. THE SYSTEM DESIGN SHALL PRODUCE FULL POWER OUTPUT, REGARDLESS OF ENGINE SPEED.

ALL CONNECTIONS TO THIS MODULE (HYDRAULIC AND ELECTRICAL) SHALL BE EASILY REMOVABLE FOR FAST REMOVAL OF THE UNIT FROM ITS MOUNTING LOCATION. HYDRAULIC HOSE FITTINGS SHALL BE PROVIDED BETWEEN THE HYDRAULIC PUMP AND THE GENERATOR ASSEMBLY.

THE DESIGN SHALL INCORPORATE THE MAXIMUM PROTECTION FROM THE EFFECTS OF OIL CONTAMINATION THAT IS AVAILABLE. ALL HYDRAULIC, ELECTRICAL, AND ELECTRO-MECHANICAL COMPONENTS UTILIZED IN THE SYSTEM SHALL BE PERFORMANCE MATCHED.

3.52 POWER TAKE-OFF

THE GENERATOR SHALL BE POWERED BY A TRUCK TRANSMISSION MOUNTED "HOT-SHIFT" POWER TAKE-OFF. AN ILLUMINATED 12 VOLT ROCKER SWITCH PTO CONTROL WITH INDICATOR LIGHT, WITHOUT NEUTRAL INTERLOCK CONNECTION SHALL BE PROVIDED AND MOUNTED IN THE CAB.

NO SOFT START

3.53 GENERATOR REMOTE START SYSTEM

A GENERATOR REMOTE START SYSTEM SHALL BE INSTALLED IN COMPARTMENT “C” DRIVERS SIDE.

3.54 GENERATOR PERFORMANCE DISPLAY

THE GENERATOR SHALL BE EQUIPPED WITH A HARRISON DIGITAL DISPLAY UNIT TO MONITOR GENERATOR OUTPUT PERFORMANCE LOCATED IN COMPARTMENT “C”.

3.56 LINE VOLTAGE ELECTRICAL SYSTEM REQUIREMENTS

THE SPECIFIED LINE VOLTAGE POWER UNIT SHALL BE INSTALLED WITH STRICT COMPLIANCE WITH NFPA 1901 GUIDELINES, AND ALL ASSOCIATED COMPONENTS AND EQUIPMENT TO BE INSTALLED SHALL COMPLY WITH NFPA 70 AND
APPLICABLE STANDARDS OF THE NATIONAL ELECTRICAL CODES. LINE VOLTAGE ELECTRICAL SYSTEM EQUIPMENT AND MATERIALS USED WITH THE SYSTEM SHALL ALL BE LISTED, PROPERLY INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND ONLY IN THE MANNER FOR WHICH THEY HAVE BEEN LISTED.

3.57 SYSTEM INSTALLATION AND WIRING

THE GENERATOR SYSTEM SHALL INCLUDE PROPER GROUNDING AND BONDING AS REQUIRED IN NEC "PORTABLE AND VEHICLE MOUNTED GENERATORS". NON-GROUNDED SYSTEMS SHALL NOT BE USED. ONLY STRANDED OR COPPER CONDUCTORS SHALL BE USED FOR GROUNDING AND BONDING PURPOSES. AN OPERATOR INSTRUCTION PLATE, AND GENERATOR RATED PERFORMANCE SPECIFICATION PLATE, SHALL BE PERMANENTLY INSTALLED AT THE CIRCUIT BREAKER CONTROL PANEL.

WIRING SHALL BE PROPERLY INSTALLED FROM THE CIRCUIT BREAKER PANEL TO ALL SPECIFIED 120/240 VOLT ACCESSORIES, INCLUDING PERMANENT CIRCUIT IDENTIFICATION AND RATING SPECIFICATIONS AS APPLICABLE. WIRING MATERIALS USED FOR THE SPECIFIED ACCESSORIES SHALL BE EITHER THHN TYPE IN NON-METALLIC LIQUID TIGHT FLEXIBLE CONDUIT, OR HEAVY DUTY SO COPPER CABLE. EITHER TYPE OF WIRING SHALL BE RATED FOR 600 VOLTS AT NOT LESS THAN 194 DEGREES FAHRENHEIT.

3.58 LINE VOLTAGE TESTING REQUIREMENTS

THE LINE VOLTAGE ELECTRICAL SYSTEM AND ASSOCIATED EQUIPMENT SHALL BE THOROUGHLY TESTED, AND THE TESTING SHALL VERIFY ELECTRICAL POLARITY, AND THAT ALL WIRING CONNECTIONS HAVE BEEN PROPERLY MADE. IN ADDITION, THE SYSTEM SHALL UNDERGO A THOROUGH OPERATIONAL TEST UNDER FULL-LOAD OF THE GENERATOR MANUFACTURER'S CONTINUOUS DUTY POWER RATING.

ALL SYSTEM TESTING SHALL BE PERFORMED WHEN THE APPARATUS IS COMPLETED, AND IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 1901.

3.59 CIRCUIT BREAKER PANEL

A TWELVE (12) POSITION CIRCUIT BREAKER PANEL SHALL BE PROVIDED WITH MANUAL RESET CIRCUIT BREAKERS AS REQUIRED. EACH CIRCUIT BREAKER SHALL BE SIZED ACCORDING TO ITS APPLICATION AND PROPERLY LABELED AS TO ITS FUNCTION.

THE BREAKER BOX SHALL BE LOCATED IN COMPARTMENT “C” ON THE DRIVERS SIDE OF THE APPARATUS.

3.60 ELECTRICAL RECEPTACLES

TWO (2) RECEPTACLES WITH WEATHERPROOF SPRING LOADED COVERS SHALL BE INSTALLED ONE (1) EACH SIDE ON THE LOWER REAR PANEL OF THE BODY BELOW PIKE POLE STORAGE.

THE RECEPTACLES SHALL BE FURNISHED WITH NEMA L5-15, 120 VOLT 15 AMP 3-PRONG TWIST LOCK CONFIGURATION.

3.61 ELECTRICAL RECEPTACLES

TWO (2) RECEPTACLES WITH WEATHERPROOF SPRING LOADED COVERS SHALL BE INSTALLED ONE (1) EACH SIDE IN THE FORWARD SECTION OF THE TILLER WHEEL FENDER PANELS.

THE RECEPTACLES SHALL BE FURNISHED WITH NEMA L5-15, 120 VOLT 15 AMP 3-PRONG TWIST LOCK CONFIGURATION.

3.62 ELECTRICAL RECEPTACLES

TWO (2) RECEPTACLES WITH WEATHERPROOF SPRING LOADED COVERS SHALL BE INSTALLED ONE (1) EACH SIDE NEXT TO OUTRIGGER CONTROL PANELS.

THE RECEPTACLES SHALL BE FURNISHED WITH NEMA L5-15, 120 VOLT 15 AMP 3-PRONG TWIST LOCK CONFIGURATION.

3.63 ELECTRICAL RECEPTACLES

TWO (2) RECEPTACLES WITH WEATHERPROOF SPRING LOADED COVERS SHALL BE INSTALLED AS DIRECTED INSIDE ENCLOSED BODY COMPARTMENTS.

3.64 ELECTRICAL RECEPTACLE

ONE (1) RECEPTACLE WITH WEATHERPROOF SPRING LOADED COVERS SHALL BE INSTALLED INSIDE THE ENCLOSED "C" BODY COMPARTMENT WIRED TO SHORELINE CONNECTION. LABELED SHORELINE CONNECTION.

THE RECEPTACLES SHALL BE FURNISHED WITH NEMA 5-15, 120 VOLT 15 AMP STRAIGHT BLADE CONFIGURATION.

THE RECEPTACLE SHALL BE FURNISHED WITH NEMA 5-15, 120 VOLT 15 AMP STRAIGHT BLADE CONFIGURATION.

3.65 240 VOLT ELECTRICAL OUTLET

ONE (1) 30 AMP 3-PRONG TWIST LOCK 240 VOLT NEMA L6-30 OUTLET SHALL BE INSTALLED IN A COMPARTMENT TO BE IDENTIFIED ON THE CONSTRUCTION APPROVAL DRAWINGS. THE OUTLET SHALL INCLUDE A WEATHERPROOF BOX AND SPRING LOADED COVER, AND SHALL BE WIRED TO A SEPARATE 240 VOLT CIRCUIT BREAKER.

3.66 CABLE REELS

INSTALL TWO (2) HANNAY ECR1618-17-18 ELECTRIC REWIND LIVE CORD REELS. EACH REEL SHALL BE HARD WIRED TO A SEPARATE 120 VOLT CIRCUIT BREAKER, AND SHALL BE EQUIPPED WITH 200' OF 10/3 SEOW-A TYPE COPPER CABLE ENDING WITH A 15 AMP NEMA L5-15 FEMALE CONNECTOR. REWIND SWITCHES SHALL BE CONVENIENTLY LOCATED FOR EASE OF OPERATION AND WHERE THE OPERATOR HAS PROPER VISIBILITY. PERMANENTLY MOUNTED REEL RATING SPECIFICATION TAGS SHALL BE INSTALLED ADJACENT TO EACH REEL IN ACCORDANCE WITH NFPA 1901 STANDARDS.

THE CORD REEL LOCATIONS SHALL BE DETERMINED AT THE PRE-CONSTRUCTION CONFERENCE.

INSTALLED AS BEST SUITED FOR EACH CORD REEL SHALL BE A SET OF HANNAY ROLLER ASSEMBLY "C" STAINLESS STEEL FOUR-WAY GUIDE ROLLERS, AND A BALL STOP FOR THE CORD END TO PREVENT OVER WINDING. ROLLERS SHALL PREVENT DAMAGE TO THE ELECTRICAL CABLE WHILE PROVIDING THE OPERATOR WITH PROPER VISIBILITY DURING REWINDING.

AT THE END OF THE CORDS SHALL BE A CIRCLE D MODEL PF-51G-5MI-YEL JUNCTION BOX WITH HIGH VISIBILITY YELLOW FINISH, LEXAN LENS POWER INDICATOR LIGHT, AND FOUR (4) 120 VOLT NEMA L5-20, 20 AMP TWIST LOCKS. INCLUDED SHALL BE ALUMINUM HOLSTER STYLE JUNCTION BOX MOUNTING BRACKETS FOR QUICK-RELEASE DEPLOYMENT.

3.67 120 VOLT DEMOUNTABLE LIGHTS

FOUR (4) 120 VOLT 650 WATT KWIK-RAZE MAGNAFIRE 3000 MODEL #336 DM HIR LIGHTS WITH TOP RAISE STYLE TELESCOPIC POLES, SHALL BE INSTALLED ON THE BODY, TWO (2) EACH SIDE OF THE BODY. EACH LIGHT SHALL BE INDIVIDUALLY SWITCHED FROM A SWITCH PANEL LOCATED IN COMPARTMENT "C".

LIGHTS SHALL BE POWERED BY A NEMA-L5-20 THREE PRONG TWIST FEMALE OUTLET LOCATED ADJACENT TO EACH LIGHT

LIGHTS SHALL BE WIRED TO A SINGLE DUAL POLE 20 AMP BREAKER LOCATED IN THE CIRCUIT BREAKER PANEL.

THE CAB MOUNTED LIGHTS SHALL BE PROTECTED BY A SINGLE CIRCUIT BREAKER. THE LEFT FRONT AND RIGHT REAR LIGHTS WILL BE CONTROLLED BY AN INDIVIDUAL BREAKER AND THE RIGHT FRONT AND LEFT REAR LIGHTS WILL BE PROTECTED BY AN INDIVIDUAL BREAKER.

3.68 PAINTING - GENERAL REQUIREMENTS

SAME AS CHASSIS PAINT REQUIREMENTS.

3.69 SINGLE COLOR BODY PAINT

THE BODY SHALL BE PAINTED USING A SINGLE COLOR TO MATCH THE CAB PRIMARY COLOR.

3.70 COMPARTMENT INTERIOR FINISH

THE INTERIOR WALLS OF ALL ENCLOSED BODY SIDE COMPARTMENTS SHALL BE FINISHED WITH LINEX TYPE MATERIAL LIGHT GRAY IN COLOR.

3.71SCOTCHLITE STRIPE

A WHITE 4" WIDE STRAIGHT SCOTCHLITE STRIPE, SHALL BE APPLIED AROUND THE PERIMETER OF THE APPARATUS ACCORDING TO NFPA GUIDELINES. THE LOCATION SHALL BE DETERMINED AT THE PRE-CONSTRUCTION CONFERENCE.

SECTION 4

100 FOOT TRACTOR-DRAWN AERIAL LADDER SPECIFICATIONS

4.0 INTENT OF AERIAL SPECIFICATIONS

THE INTENT OF THESE SPECIFICATIONS IS TO DESCRIBE A TRACTOR-DRAWN TELESCOPING AERIAL LADDER OF THE TRUE LADDER TYPE. IT SHALL CONSIST OF FOUR (4) STEEL LADDER SECTIONS WITH A PRE-PIPED TELESCOPING WATERWAY, A STEEL TURNTABLE, TRAILER FRAME ASSEMBLY, AND OUTRIGGERS.

IT IS ALSO THE INTENT OF THE PURCHASER TO SECURE A FIRE SERVICE PROVEN PIECE OF APPARATUS WHICH IS MANUFACTURED IN THE UNITED STATES.

IT IS NOT THE INTENT OF THE PURCHASER TO DEVIATE FROM THIS REQUIREMENT; THEREFORE, LADDERS ATTACHED TO BOOMS (WHETHER SOLID OR LATTICE) OR ARTICULATING ARMS SHALL NOT BE CONSIDERED AS MEETING THESE SPECIFICATIONS OR THE INTENT OF THESE SPECIFICATIONS.

4.1 CONSTRUCTION STANDARDS

THE LADDER SHALL BE DESIGNED SUCH THAT STRESSES PRODUCED AT AT 2 X DL (DEAD LOAD) + 2 X RL (RATED LOAD CAPACITY) SHALL NOT EXCEED MATERIAL YIELD STRENGTH AND A ONE AND ONE-HALF TO ONE (1.5:1) STABILITY FACTOR, IN COMPLIANCE WITH THE INTENT OF THE NFPA STANDARDS FOR AERIAL FIRE APPARATUS.

THE CAPABILITIES SHALL BE ESTABLISHED IN THE UNSUPPORTED CONFIGURATION; AND ALL LADDER SECTIONS, TURNTABLE, TORQUE BOX, OUTRIGGERS, ETC. SHALL BE THOROUGHLY STRAIN GAUGE TESTED IN ADDITION TO COMPLETE COMPUTER MODELING ANALYSIS. THE BIDDER SHALL EMPLOY A FULL-TIME REGISTERED PROFESSIONAL ENGINEER ASSIGNED TO AERIAL DESIGN. THE BIDDER SHALL PROVIDE WRITTEN CERTIFICATION, SIGNED BY AN ON-STAFF REGISTERED PROFESSIONAL ENGINEER, CERTIFYING THAT THE UNIT MEETS THIS REQUIREMENT.

4.2 REFERENCES

A LIST OF TEN (10) IN-SERVICE UNITS OF THE APPARATUS PROPOSED SHALL BE PROVIDED BY THE MANUFACTURER OF THE AERIAL DEVICE. THIS LIST SHALL INCLUDE THE FIRE DEPARTMENT'S NAME AND ADDRESS, CHIEF'S NAME, AND TELEPHONE NUMBER.

4.3 HEIGHT

THE MINIMUM HEIGHT OF THE AERIAL DEVICE AT 75 DEGREES ELEVATION AND FULL EXTENSION SHALL BE 100 FEET. THIS SHALL BE MEASURED BY A PLUMB LINE FROM THE TOP RUNG OF THE LADDER TO THE GROUND.

4.4 REACH

AS HORIZONTAL REACH IS OFTEN MORE IMPORTANT THAN VERTICAL HEIGHT, THE MINIMUM HORIZONTAL REACH SHALL BE 94 FEET. THIS SHALL BE MEASURED FROM THE CENTER LINE OF ROTATION TO THE TIP OF THE FLY SECTION.

4.5 WELDMENT FIXTURES

TO ENSURE THE HIGHEST LEVELS OF QUALITY AND ULTIMATE SAFETY, ALL WELDMENTS (OUTRIGGER, TRAILER FRAME, TURNTABLE, LADDER SECTION, PINS, BUSHINGS, ETC.) SHALL BE MANUFACTURED BY THE BIDDER TO ENSURE SOLE SOURCE RESPONSIBILITY. ALL RAW MATERIALS SHALL BE VENDOR CERTIFIED. AS SPECIFIED IN THE AERIAL APPARATUS CERTIFICATION SECTION, EACH WELDMENT SHALL BE THIRD-PARTY CERTIFIED PRIOR TO ASSEMBLY.

TO ENSURE TOLERANCES BETWEEN PARTS AND PART INTERCHANGEABILITY, ALL WELDMENTS SHALL BE MANUFACTURED IN FIXTURES. TO FURTHER ENSURE WELD INTEGRITY IN ALL WELDMENTS, THE FIXTURES MUST BE ABLE TO ROTATE TO ENABLE THE WELDMENT TO BE WELDED IN THE NUMBER 1 FLAT WELDING POSITION, RESULTING IN MAXIMUM WELD PENETRATION IN THE WELDED MATERIAL.

4.6 AERIAL APPARATUS CERTIFICATION (TYPE I)

THE AERIAL DEVICE SHALL BE TESTED AND CERTIFIED BY A THIRD-PARTY TESTING COMPANY IN COMPLIANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION'S STANDARD NO. 1914 (LATEST EDITION) DURING CONSTRUCTION AND BEFORE SHIPMENT. ALL WELDING ON THE AERIAL DEVICE SHALL MEET AMERICAN WELDING SOCIETY (AWS) D1.1 STRUCTURAL WELDING CODE.

THE FOLLOWING TESTS SHALL BE CONDUCTED BY PERSONNEL HOLDING A LEVEL II CERTIFICATION IN ACCORDANCE WITH ASNT-TC-1A RECOMMENDED PRACTICES:

1. NONDESTRUCTIVE TESTING METHODS SHALL BE INCORPORATED INTO THE INSPECTION TO DETECT DEFECTS AND IMPROPERLY SECURED PARTS.

A) MAGNETIC PARTICLE INSPECTION SHALL BE CONDUCTED ON ALL PARTS OF THE LADDER, TURNTABLE TORQUE BOX AND OUTRIGGERS BEFORE ASSEMBLY TO ASSURE THE INTEGRITY OF THE WELDMENTS AND TO DETECT ANY DISCONTINUITIES. MANUFACTURERS THAT TEST AFTER ASSEMBLY SHALL NOT BE ACCEPTABLE.

B) ULTRASONIC INSPECTION SHALL BE USED TO DETECT ANY FLAWS IN PINS, BOLTS, AND OTHER CRITICAL MOUNTING COMPONENTS.

2. FUNCTIONAL TESTS, LOAD TESTS, STABILITY TESTS, AND VISUAL STRUCTURAL EXAMINATIONS SHALL BE PERFORMED. THESE TESTS SHALL DETERMINE ANY UNUSUAL DEFLECTION, NOISE, VIBRATION, OR INSTABILITY CHARACTERISTIC OF THE UNIT. UPON

COMPLETION OF THE PRECEDING INSPECTIONS, THE THIRD-PARTY TESTING COMPANY SHALL ISSUE A CERTIFICATE OF INSPECTION (TYPE I) INDICATING THAT ALL SPECIFIED STANDARDS HAVE BEEN SATISFIED. AERIAL MANUFACTURERS NOT UTILIZING THIRD-PARTY INDEPENDENT TESTING COMPANIES SHALL NOT BE ACCEPTABLE. AERIAL MANUFACTURERS NOT PROVIDING A TYPE I CERTIFICATE OF INSPECTION SHALL NOT BE ACCEPTABLE.

4.7 TESTING CRITERIA

THE MANUFACTURER OF THE AERIAL DEVICE SHALL PROVIDE A WRITTEN STATEMENT SIGNED BY A REGISTERED PROFESSIONAL ENGINEER CERTIFYING THE AERIAL'S ABILITY TO PERFORM THE FOLLOWING TESTS.

THE FOLLOWING STABILITY REQUIREMENTS SHALL BE MET BY THE AERIAL APPARATUS WHEN IT IS IN A SERVICE-READY CONDITION, BUT WITH ALL NORMALLY REMOVABLE ITEMS SUCH AS WATER, HOSE, GROUND LADDERS, LOOSE EQUIPMENT, ETC. REMOVED. ITEMS MOUNTED ON THE AERIAL DEVICE BY THE MANUFACTURER SHALL REMAIN MOUNTED.

1-1/2:1 STABILITY TEST - A TEST OF THE APPARATUS SHALL BE PERFORMED THAT THE LADDER SECTIONS ARE SO DESIGNED AND POWERED TO SUPPORT A LOAD REPRESENTING 150% OF THE MANUFACTURER'S RATED PAYLOAD CAPABILITY AT MAXIMUM HORIZONTAL REACH AND ROTATED A COMPLETE 360 DEGREES. SPECIFICALLY, 375 POUND LOAD PLACE AT THE TIP WITH THE LADDER FULLY EXTENDED, AT A RANGE FROM -2 DEGREES TO +50 DEGREES, SHALL BE ROTATED 360 DEGREES. THE LADDER MAY NEED TO BE RAISED SLIGHTLY IN ORDER TO CLEAR APPARATUS BODY AND CAB.

1-1/3:1 STABILITY TEST - A TEST OF THE APPARATUS SHALL BE PERFORMED THAT THE LADDER SECTIONS ARE SO DESIGNED AND POWERED TO SUPPORT A LOAD REPRESENTING 133% OF THE MANUFACTURER'S RATED PAYLOAD CAPABILITY AT MAXIMUM HORIZONTAL REACH AND ROTATED A COMPLETE 360 DEGREES WITH THE VEHICLE ON A SLOPE OF 5 DEGREES DOWNWARD IN A DIRECTION MOST LIKELY TO CAUSE OVERTURNING. SPECIFICALLY, 333 POUND LOAD AT THE TIP WITH THE LADDER FULLY EXTENDED, AT A RANGE FROM -2 DEGREES TO +50 DEGREES, SHALL BE ROTATED 360 DEGREES. THE LADDER MAY NEED TO BE RAISED SLIGHTLY IN ORDER TO CLEAR APPARATUS BODY AND CAB.

LADDER TIME TEST - A TEST OF THE APPARATUS SHALL BE PERFORMED TO RAISE THE LADDER FROM THE BEDDED POSITION TO MAXIMUM ELEVATION AND EXTENSION AND ROTATED 90 DEGREES SMOOTH-LY AND WITHOUT UNDUE VIBRATION IN NOT OVER 120 SECONDS.

OUTRIGGER TIME TEST - THE STABILIZERS SHALL BE FROM THE STOWED POSITION TO THE OPERAT-ING POSITION IN NOT MORE THAN 90 SECONDS.

WATER TOWER TEST #1 - A TEST OF THE APPARATUS SHALL BE PERFORMED TO TEST ITS ABILITY TO DISCHARGE 1,000 GALLONS PER MINUTE, PARALLEL TO THE LADDER, WITH THE UNIT AT FULL EXTENSION.

WATER TOWER TEST #2 - A TEST OF THE APPARATUS SHALL BE PERFORMED TO TEST THE ABILITY TO DISCHARGE 1,000 GALLONS PER MINUTE, 90 DEGREES TO THE LADDER, WITH THE LADDER AT FULL EXTENSION.

4.8 LOAD CRITERIA CERTIFICATION

EACH BIDDER SHALL SUPPLY A WRITTEN STATEMENT FROM A REGISTERED PROFESSIONAL ENGINEER CERTIFYING THAT THE STRUCTURAL SAFETY FACTOR BASED ON THE RATED CAPABILITIES HAVE BEEN ACHIEVED.

THIS STATEMENT SHALL BE BASED ON THE FOLLOWING DEFINITIONS:

DL - DEAD LOAD STRESS. STRESS INDUCED BY STRUCTURE AND PERMANENTLY ATTACHED COMPONENTS (PSI).

RL - RATED CAPACITY LOAD STRESS. STRESS INDUCED BY VERTICAL PAYLOAD (500 POUND MINIMUM).

WL - WATER REACTION STRESS. STRESS INDUCED BY NOZZLE REACTION AND WEIGHT OF WATER (1000 GPM AT 90 DEGREES EITHER SIDE OF LADDER CENTERLINE).

FY - YIELD STRENGTH OF STEEL (PSI).

WITH NO WATER FLOWING, AND FULL RATED VERTICAL TIP LOAD (500 POUND MINIMUM) IN WORST POSITION (0 DEGREES ELEVATION WITH LADDER AT FULL EXTENSION), FOR LADDER STRESS:

2 X DL PLUS 2 X RL IS LESS THAN OR EQUAL TO FY

WITH THE LADDER AT A 0 DEGREE ELEVATION ANGLE AT FULL EXTENSION AND WITH WATER FLOWING AND FULL RATED VERTICAL TIP LOAD (500 POUND MINIMUM) WITH MONITOR IN WORST POSITION FOR LADDER STRESS (1000 GPM MINIMUM):

2 X DL PLUS 2 X RL PLUS WL IS LESS THAN OR EQUAL TO FY

4.9 AERIAL LADDER LOADING CAPABILITES

THE FOLLOWING AERIAL LADDER AND WATER CAPABILITIES SHALL BE ESTABLISHED IN THE UNSUPPORTED CONFIGURATION WITH THE TRUCK LEVEL, THE OUTRIGGERS FULLY EXTENDED AND LOWERED TO RELIEVE THE CHASSIS WEIGHT FROM THE AXLES. THE CAPACITIES SHALL BE BASED UPON 360 DEGREE CONTINUOUS ROTATION AND UP TO FULL EXTENSION. THE RATINGS SHALL BE BASED ON AVERAGE WEIGHT OF PERSONNEL ON LADDER AT 250 LBS. EACH.

4.10 LADDER OPERATION CAPABILITES

ELEVATION	TIP OR EVENLY DISTRIBUTED LOAD
-2 TO 45 DEGREES	250 POUNDS @ TIP OR 500 POUNDS EVENLY DISTRIBUTED
46 TO 75DEGREES	500 POUNDS @ TIP OR 1000 POUNDS EVENLY DISTRIBUTED

4.11 WATER TOWER OPERATION CAPABILITES

THE AERIAL LADDER AND WATER SYSTEM SHALL BE DESIGNED TO PERMIT 1000 GPM FLOW WITH WATER STREAM 90 DEGREES EITHER SIDE OF THE LADDER CENTERLINE OR WITH THE WATER STREAM ELEVATION PARALLEL WITH THE LADDER CENTERLINE FROM 0 DEGREES ABOVE HORIZONTAL TO 135 DEGREES BELOW HORIZONTAL.

THE LADDER SHALL BE CAPABLE OF THE ABOVE FLOW RATES FROM -2 TO 75 DEGREE ELEVATION AT FULL LADDER EXTENSION. FROM 26 TO 46 DEGREES ELEVATION, A 250 POUND TIP LOAD CAPACITY WITH THE ABOVE FLOW RATES SHALL BE PROVIDED WITH AN 85 FOOT LADDER EXTENSION. ALSO, FROM 46 TO 75 DEGREES, A 500 POUND TIP LOAD WITH THE ABOVE FLOW RATES SHALL BE PROVIDED WITH A 65 FOOT LADDER EXTENSION.

4.12 OPERATION ON GRADES

THE AERIAL SHALL BE CAPABLE OF BEING OPERATED IN ANY PLANE UP TO 3-1/2 DEGREES OUT OF LEVEL WITH FULL RATED CAPABILITIES. FOR SLOPE CONDITIONS FROM 3-1/2 DEGREES TO 7 DEGREES, CAPABILITIES SHALL BE REDUCED BY 50%. OPERATION BEYOND THIS LIMIT SHALL BE AT THE OPERATOR'S DISCRETION.

4.13 MOUNTING OF THE AERIAL DEVICE

THE AERIAL DEVICE SHALL BE REARWARD-MOUNTED ON THE TRAILER IN ORDER TO PERMIT DRIVER VISIBILITY AND TO KEEP THE OVERALL HEIGHT OF THE VEHICLE AT A MINIMUM.

THE LADDER REST SHALL BE PROVIDED TO SUPPORT THE LADDER IN THE TRAVEL POSITION. THE REST SHALL BE CONSTRUCTED AS PART OF THE GROUND LADDER SUPERSTRUCTURE. STAINLESS STEEL BEDDING PLATES SHALL BE ATTACHED TO THE LADDER BASE SECTION TO PROTECT THE LADDER PAINT WHEN THE UNIT IS IN THE TRAVEL POSITION. LADDER REST TO BE WHITE IN COLOR.

4.14 FRAME

THE TRAILER FRAME SHALL BE OF WELDED STEEL CONSTRUCTION AND GOOSENECK DESIGN.

THE GOOSENECK AREA SHALL BE CONSTRUCTED USING TUBE AND PLATE. THIS AREA OF THE TRAILER FRAME SHALL HAVE A SECTION MODULUS OF 392.0 IN3 AND A RESISTANCE TO BENDING MOMENT OF 14,090,000 IN LBS.

THE REARWARD PORTION OF THE TRAILER FRAME SHALL BE CONSTRUCTED, USING "C" CHANNEL AND PLATE. THE SECTION OF FRAME FROM THE GOOSENECK TO THE AXLE SHALL

HAVE A SECTION MODULUS OF 233.5 IN3 AND A RESISTANCE TO BENDING MOMENT OF 8,406,000 IN LBS.

THE PORTION OF THE TRAILER FRAME REARWARD OF THE AXLE SHALL HAVE A SECTION MODULUS OF 111.7 IN3 AND A RESISTANCE TO BENDING MOMENT OF 4,021,200 IN LBS.

THE TUBE AND PLATE GOOSENECK AREA SHALL BE 45" WIDE AND 15" DEEP. THE "C" CHANNEL AND PLATE PORTION OF THE FRAME SHALL BE 34" WIDE AND 13" DEEP. OVERALL LENGTH OF TRAILER FRAME SHALL BE 432-5/8.

THE TRAILER WHEELBASE SHALL BE 346".

4.15 ANCHOR POINTS

TWO (2) ANCHOR POINTS SHALL BE LOCATED BELOW TURNTABLE CENTERLINE, ONE (1) EACH SIDE OF TRAILER GOOSENECK STRUCTURE. ANCHOR POINTS SHALL BE “D” RING STYLE ¾” DIAMETER STEEL MOUNTED ON SWIVEL ATTACHMENTS WITH MINIMUM 9000 POUND LOAD RATING. ANCHOR POINT WELDS SHALL BE MAGNETIC PARTICLE INSPECTED TO INSURE QUALITY AND LOAD RATING.

4.16 TRAILER FIFTH WHEEL ASSEMBLY

THE FIFTH WHEEL SHALL BE A 1.25" DIAMETER BALL MONORACE BEARING, 3.88" X 34" DIAMETER, WITH THE MOUNTING PLATE BOLTED TO THE CHASSIS. THE LONGITUDINAL PIVOT POINT MOUNTING SHALL UTILIZE TWO (2) 2" DIAMETER STEEL PINS.

4.17 TRAILER AXLE

THE TRAILER AXLE SHALL BE A MERITOR MODEL FL-941 STEERING AXLE WITH A 21,500 POUND CAPACITY. THE AXLE SHALL ACCOMODATE HUB PILOTED WHEELS.

THE TRAILER AXLE SHALL BE SUPPLIED WITH CHICAGO RAWHIDE OIL SEALS.

4.18 TRAILER STEERING SYSTEM

THE TRAILER STEERING GEAR SHALL BE ROSS TAS-85 INTEGRAL POWER STEERING GEAR BOX. THE HYDRAULIC POWER STEERING PUMP SHALL BE A VICKERS V2010F (OR EQUAL) TANDEM TYPE.

THE PRIMARY SECTION SHALL BE FOR THE TRACTOR STEERING. THE SECONDARY SECTION SHALL BE FOR THE TRAILER STEERING. A 20" DIAMETER STEERING WHEEL SHALL BE PROVIDED IN THE TILLER CAB.

4.19 TRAILER SUSPENSION

THE TRAILER SUSPENSION SHALL BE A RIDEWELL MODEL RAS-227 AIR RIDE SUSPENSION SYSTEM. THE SUSPENSION SHALL HAVE A CAPACITY AT GROUND EQUAL TO THAT OF THE TRAILER AXLE. BILSTEIN HEAVY DUTY SHOCK ABSORBERS SHALL BE INSTALLED ON THE TRAILER SUSPENSION.

4.20 TRAILER BRAKE SYSTEM

THE TRAILER AIR BRAKE SYSTEM SHALL BE PLUMBED WITH REINFORCED, COLOR CODED NYLON AIR BRAKE TUBING IN CONFORMANCE TO SAE J844-94, TYPE B AND U.S.D.O.T. STANDARDS. THE COMPRESSOR DISCHARGE SHALL BE PLUMBED WITH STAINLESS STEEL BRAIDED HOSE LINES WITH A TEFLON LINING. NYLON AIR LINES SHALL BE ENCLOSED IN HIGH TEMPERATURE CONVOLUTED LOOM RUN ALONG THE INSIDE FRAME RAILS, SECURED WITH NON-CONDUCTIVE, CORROSION RESISTANT STRAPPING MOUNTED WITH STAND-OFF FASTENERS. CORD REINFORCED RUBBER HOSE LINES WITH BRASS FITTINGS SHALL BE INSTALLED FROM FRAME RAIL TO AXLE MOUNTED AIR CONNECTIONS.

4.21 TRAILER BRAKES, DISC

THE TRAILER BRAKES SHALL BE ROCKWELL ADB-1560 DISC TYPE AND SHALL CONFORM TO EXISTING DEPARTMENT OF TRANSPORTATION BRAKING REGULATIONS AT TIME OF MANUFACTURE. THE CAPACITY OF THE TWO (2) AIR TANKS SHALL BE 2,908 CUBIC INCHES.

4.22 TRAILER ABS BRAKING SYSTEM

THE TRAILER AXLE SHALL BE EQUIPPED WITH A WABCO ANTI-LOCK BRAKING SYSTEM (ABS) TO PROVIDE CONTROLLED STOPPING UNDER EMERGENCY BRAKING CONDITIONS. THE SYSTEM SHALL HELP TO MAINTAIN STEERABILITY AND STABILITY UNDER EMERGENCY BRAKING.

ALL WHEEL SENSORS INSTALLED ON THE APPARATUS SHALL BE RIGID MOUNTED AND COMPLETELY WEATHER SEALED FOR CORROSION RESISTANCE.

4.23 BRAKING CONTROL SYSTEM

THE TRAILER BRAKES SHALL BE PLUMBED TO A "BRAKE RELEASE" CONTROL VALVE IN THE TRACTOR CAB WITHIN EASY REACH OF THE DRIVER'S SEAT POSITION AND SHALL BE LABELED AS TO ITS FUNCTION. ONE (1) CONTROL SHALL BE USED FOR THE TRACTOR AND TRAILER AXLE. AN INDICATOR LIGHT SHALL BE INSTALLED IN THE TRACTOR CAB DASH ADJACENT TO THE CONTROL.

4.24 TRAILER BRAKE CHAMBERS

THE TRAILER BRAKE CHAMBERS SHALL BE MGM "30/30" SPRING BRAKE CHAMBERS MOUNTED ON THE TRAILER AXLE.

4.25 TRAILER BRAKE RESERVOIRS

THE TRAILER BRAKES SHALL BE SUPPLIED BY TWO (2) AIR RESERVOIRS WITH A TOTAL CAPACITY OF 2,908 CUBIC INCHES.

4.26 AIR TANK PULL CABLES

AIR TANKS SHALL BE EQUIPPED WITH MANUAL DRAIN VALVES OPERATED BY STAINLESS STEEL PULL CABLES.

4.27 TRAILER WHEELS

THE TRAILER WHEELS SHALL BE DISC STYLE 22.50 X 13" POLISHED ALUMINUM. THE WHEELS SHALL HAVE A 11-1/2" DIAMETER BOLT CIRCLE WITH TEN (10) HOLES. WHEEL CAPACITY SHALL BE A MINIMUM OF 21,500 POUNDS.

4.28 CHROME LUG NUT COVERS

CHROME PLATED LUG NUT COVERS SHALL BE PROVIDED ON EACH TRAILER WHEEL.

4.29 TRAILER TIRES

THE TRAILER TIRES SHALL BE GOODYEAR 425/65R 22.5 TUBELESS RADIAL, 18 PLY G286 TREAD WITH A 22,470 POUND CAPACITY AT 120 PSI.

4.30 OUTRIGGERS

TWO (2) INDEPENDENTLY CONTROLLED OUT-AND-DOWN TYPE OUTRIGGERS SHALL BE PROVIDED, CAPABLE OF MAXIMUM STABILITY WITH IN A 14' STANCE ACROSS THE OUTRIGGERS.

THE OUTRIGGERS SHALL BE INSTALLED IN THE FRONT OF THE TRAILER FORWARD OF THE TRAILER COMPARTMENTATION.

THE EXTENSION OF THE HORIZONTAL BEAMS SHALL BE ACCOMPLISHED BY AN EXTENSION CYLINDER WHICH HAS A 3" INTERNAL DIAMETER (BORE), 2" DIAMETER CYLINDER ROD, AND A 54" STROKE.

EACH VERTICAL JACK CYLINDER SHALL HAVE A 5" INTERNAL DIAMETER (BORE), 3-3/4" DIAMETER CHROME PLATED CYLINDER ROD AND A 22-1/8" STROKE.

JACK CYLINDERS SHALL BE EQUIPPED WITH INTEGRAL (ON THE CYLINDER) HOLDING VALVES WHICH WILL HOLD THE JACK CYLINDER EITHER IN THE STOWED POSITION OR THE WORKING POSITION SHOULD A CHARGE LINE BE SEVERED AT ANY POINT WITHIN THE HYDRAULIC SYSTEM.

EACH VERTICAL JACK BOX STRUCTURE SHALL BE EQUIPPED WITH A FIVE-POSITION MECHANICAL PIN LOCK.

ALL CYLINDERS SHALL BE FULLY ENCLOSED WITHIN TELESCOPING JACK BOXES TO PROTECT THE CYLINDER RODS AGAINST DAMAGE WHICH MAY OCCUR WHILE ON THE FIRE GROUND.

FOR EASE OF MAINTENANCE, OUTRIGGER EXTENSION CYLINDERS SHALL HAVE END CONNECTIONS WHICH DO NOT REQUIRE BODY ACCESS PANELS TO REMOVE PINS AND EXTENSION CYLINDERS.

FOUR (4) SLIDE PADS SHALL BE PROVIDED FOR EACH OUTRIGGER ASSEMBLY TO PROVIDE SMOOTH OPERATION AND TO EXTEND THE LIFE OF THE OUTRIGGER.

4.31 OUTRIGGER PADS

TWO (2) ONE-POSITION FLOATING TYPE 1/2" THICK, 168 SQ. INCH STEEL PADS SHALL BE PROVIDED, ONE (1) ON EACH OUTRIGGER.

THE OUTRIGGER PADS SHALL NOT REQUIRE OPERATOR ADJUSTMENT DURING SET-UP. OUTRIGGER PADS THAT PIVOT IN ONLY ONE PLANE SHALL NOT BE ACCEPTABLE DUE TO THEIR INABILITY TO DISTRIBUTE LOADING OVER THE TOTAL PAD SURFACE ON UNEVEN TERRAIN.

4.32 AUXILIARY OUTRIGGER PADS

TWO (2) AUXILIARY OUTRIGGER PADS SHALL BE PROVIDED FOR ADDITIONAL LOAD DISTRIBUTION ON SOFT SURFACES. EACH PAD SHALL BE FABRICATED OF 3/8" 6061-T6 HIGH STRENGTH ALUMINUM ALLOY PLATE AND SHALL HAVE A HANDLE FOR EASY USE OF THE 24" X 24" FLAT PAD.

4.33 TRACTOR LOCKOUT SYSTEM

TO REDUCE FLEXING BETWEEN THE TRACTOR AND TRAILER DURING AERIAL OPERATIONS, FOUR (4) HYDRAULIC CYLINDERS SHALL BE MOUNTED ON THE TRAILER. THE CYLINDER ROD ENDS SHALL EXTEND DOWN TO THE TRACTOR FIFTH WHEEL PLATE.

4.34 OUTRIGGER LEVELING INDICATORS

TWO (2) BUBBLE TYPE LEVELING INDICATORS SHALL BE PROVIDED AT THE OUTRIGGER CONTROL STATION, ONE (1) EACH SIDE, TO ASSIST IN OUTRIGGER SET-UP AND LEVELING OF THE APPARATUS.

4.35 OUTRIGGER DEPLOYMENT WARNING ALARM

AN OUTRIGGER DEPLOYMENT WARNING DEVICE SHALL BE PROVIDED TO WARN PERSONNEL IN THE VICINITY OF THE APPARATUS THAT THE OUTRIGGERS ARE IN MOTION. WHENEVER AN OUTRIGGER CONTROL HANDLE IS UTILIZED, THE DEVICE SHALL PRODUCE A PULSING TONE, SEPARATE AND DISTINCTIVE FROM THAT OF OTHER AUDIBLE WARNING SYSTEMS PROVIDED ON THE APPARATUS. WHEN THE OUTRIGGER CONTROL DEVICE IS RELEASED TO ITS NEUTRAL POSITION, THE SIGNAL SHALL CEASE. THE WARNING DEVICE SHALL HAVE A TWO-POSITION SWITCH TO ENABLE THE DB LEVEL TO BE RAISED OR LOWERED.

4.36 SAFETY FEATURES

THE OUTRIGGER SYSTEM SHALL PROVIDE THE FOLLOWING SAFETY FEATURES:

- A SYSTEM TO ENSURE THAT ALL OUTRIGGER BEAMS AREA FULLY EXTENDED BEFORE THE JACK CYLINDERS CAN BE LOWERED.

- A MOMENTARY OVERRIDE SAFETY SWITCH TO ALLOW OPERATOR DISCRETIONARY PLACEMENT OF AN OUTRIGGER JACK WITH THE BEAM AT LESS THAN FULL EXTENSION.

- AN OUTRIGGER INTERLOCK SYSTEM TO PREVENT RAISING OF THE AERIAL PRIOR TO ALL OUTRIGGERS BEING IN FIRM CONTACT WITH THE GROUND. GREEN INDICATOR LIGHTS SHALL BE PROVIDED AT THE OUTRIGGER CONTROL STATIONS TO INDICATE CIRCUIT COMPLETION.

- A RED WARNING LIGHT AND MOMENTARY SAFETY SWITCH SHALL BE PROVIDED AT THE AERIAL OPERATOR'S CONTROL CONSOLE. THE RED WARNING LIGHT SHALL WARN THE OPERATOR THAT OUTRIGGERS ARE NOT FULLY EXTENDED IN THE EVENT THE APPARATUS HAS BEEN SET UP WITH ONE (1) OUTRIGGER BEAM "SHORT SET". THE MOMENTARY SAFETY SWITCH SHALL ALLOW THE OPERATOR TO ENGAGE THE SAFETY SWITCH IN CONJUNCTION WITH HAND CONTROLLERS FOR AERIAL OPERATION.

- A LADDER CRADLE/OUTRIGGER INTERLOCK SYSTEM SHALL BE PROVIDED TO PREVENT THE LIFTING OF THE AERIAL FROM THE NESTED POSITION UNTIL THE OPERATOR PLACES ALL JACKS IN THE LOAD SUPPORTING CONFIGURATION. A LIMIT SWITCH AT THE LADDER REST SHALL PREVENT OPERATION OF THE OUTRIGGERS ONCE THE AERIAL HAS BEEN ELEVATED FROM THE NESTED POSITION.

FOR THE SAFETY OF PERSONNEL AND EQUIPMENT, NO EXCEPTIONS SHALL BE ALLOWED TO THIS INTERLOCK SYSTEM.

AERIAL LADDER COMPONENTS

4.37 AERIAL LADDER SECTION CONSTRUCTION

THE AERIAL LADDER SHALL BE COMPRISED OF FOUR (4) SECTIONS. THE LADDER SECTIONS SHALL BE CONSTRUCTED OF WELDED, HIGH-STRENGTH STEEL THROUGHOUT. EACH SECTION SHALL BE TRUSSED DIAGONALLY, VERTICALLY, AND HORIZONTALLY, USING STEEL RECTANGULAR TUBING, REINFORCED AT CRITICAL POINTS FOR EXTRA RIGIDITY, THUS GIVING A HIGH STRENGTH-TO-WEIGHT RATIO.

ALUMINUM LADDER SECTIONS, EITHER WELDED OR RIVETED, SHALL NOT BE ACCEPTABLE DUE TO ALUMINUM'S LOSS OF STRENGTH WHEN EXPOSED TO HIGH TEMPERATURES INCIDENTAL TO FIRE FIGHTING.

ALL LADDER RUNGS SHALL BE WELDED TO THE RUNG RAIL SECTION IN TWO (2) PLACES. K-BRACING SHALL BE PROVIDED BETWEEN THE RUNGS AND LADDER RUNG RAILS TO PROVIDE THE ABILITY TO DISCHARGE WATER AT 90 DEGREES TO THE SIDE OF THE LADDER. LADDERS THAT DO NOT UTILIZE K-BRACING SHALL NOT BE ACCEPTABLE.

ALL RUNGS SHALL BE ROUND AND COVERED WITH DEEPLY SERRATED, REPLACEABLE, HEAVY-DUTY RUBBER SHEATHS, WHICH SHALL BE BOTH GLUED AND CLAMPED SECURELY TO THE RUNGS. FOR SAFETY PURPOSES, LADDERS THAT DO NOT USE RUBBER-COVERED RUNGS SHALL NOT BE ACCEPTABLE.

LADDER CONSTRUCTION SHALL COMPLEMENT THE SUPPORT OF HEAVY OR UNBALANCED LOADS AT HORIZONTAL OR LOW-ANGLE POSITIONS.

TO ALLOW THE PASSING OF PERSONNEL ON THE LADDER AND SAFE LADDER CLIMBING AT ANY ANGLE, THE DIMENSIONS OF THE LADDER SECTIONS SHALL BE AS FOLLOWS:

BASE SECTION: 33-1/2" WIDE X 23-1/2" HIGH
MID SECTION: 28.00" WIDE X 20-5/8" HIGH
OUTER MID SECTION: 24.00" WIDE X 18-1/8" HIGH
FLY SECTION: 19-3/4" WIDE X 15-5/8" HIGH

4.38 DOUBLE WALL RAIL CONSTRUCTION

THE BOTTOM RUNG RAILS OF THE TELESCOPING LADDER SECTIONS SHALL BE OF DOUBLE-WALL CONSTRUCTION. FLAT STOCK SHALL BE WELDED TO THE BOTTOM OF THE TUBULAR RUNG RAILS TO INCREASE THEIR THICKNESS, THUS PREVENTING DAMAGE AND FATIGUE TO THE RUNG RAILS CAUSED BY ROAD HAMMER WHILE BEING DRIVEN AND HEAVY LOADS DURING LADDER OPERATION. THE FLAT STOCK SHALL ACT AS THE LOAD TRANSFER SURFACE BETWEEN TELESCOPING SECTIONS, THUS PROVIDING GREATER LOAD TRANSFER FROM SECTION TO SECTION.

4.39 FOLDING STEPS

TWO (2) SPRING-LOADED ALUMINUM FOLDING STEPS WITH "BUSTIN" NON-SLIP ALUMINUM INSERTS SHALL BE INSTALLED IN THE FLY SECTION OF THE LADDER TO PROVIDE FOOTING FOR AN OPERATOR STATIONED AT THE TIP OF THE FLY SECTION. SPRINGS SHALL HOLD THE STEPS IN PLACE DURING USE AND SECURE THE STEPS IN THE STOWED POSITION WHEN NOT IN USE. EACH STEP SHALL HAVE A MINIMUM SURFACE AREA OF 72 SQUARE INCHES AND A MINIMUM DESIGN LOAD OF 500 LBS.

4.40 BASE SECTION NAMEPLATES

TWO (2) PAINTED WHITE ALUMINUM NAMEPLATES SHALL BE PROVIDED AND BOLTED ON THE LADDER BASE SECTION FOR THE FIRE DEPARTMENT'S NAME, ONE (1) EACH SIDE. THE NAMEPLATES SHALL BE 20" HIGH X 120" LONG.

4.41 ELEVATION SYSTEM

TWO (2) DOUBLE-ACTING LIFT CYLINDERS SHALL PROVIDE SMOOTH, PRECISE ELEVATION FROM MINUS 2 DEGREES TO PLUS 75 DEGREES. UNITS THAT DO NOT OPERATE BELOW 0 DEGREES SHALL NOT BE ACCEPTABLE.

ELEVATION CYLINDERS SHALL HAVE A 6" INTERNAL DIAMETER (BORE); 3-1/2" CYLINDER ROD DIAMETER; AND A 35" STROKE.

THE ELEVATION CYLINDERS SHALL BE EQUIPPED WITH INTEGRAL (ON THE CYLINDER) HOLDING VALVES TO PREVENT THE UNIT FROM FALLING SHOULD THE CHARGE LINES BE SEVERED AT ANY POINT WITHIN THE HYDRAULIC SYSTEM. UNITS THAT DO NOT USE HOLDING VALVES ON THE CYLINDERS SHALL NOT BE ACCEPTABLE. A HYDRAULIC HOLDING VALVE SHALL BE PROVIDED IN THE ELEVATION CIRCUIT TO RETAIN THE AERIAL LADDER IN ITS BED WHEN THE VEHICLE IS IN MOTION.

THE ELEVATION CYLINDERS SHALL BE PROVIDED WITH BOTH ROD AND PISTON "HYDRAULIC CUSHIONS". THE CUSHIONS SHALL SERVE TO DECELERATE THE CYLINDER NEAR THE END OF ITS STROKE RESULTING IN A SMOOTH STOP AT FULL CYLINDER STROKE.

4.42 ROTATION SYSTEM

A 38.65" DIAMETER EXTERNAL TOOTH MONORACE BEARING SHALL BE PROVIDED FOR 360 DEGREE CONTINUOUS ROTATION IN EITHER DIRECTION. TO ENSURE PROPER BEARING INSTALLATION AND LONG SERVICE LIFT, SURFACES OF BOTH THE OPEN BASE BEARING PLATE AND THE TURNTABLE BEARING PLATE SHALL BE MILLED.

THE BEARING SHALL BE ATTACHED TO THE TURNTABLE AND BOLTED TO THE OPEN BASE SUPPORT PLATE, USING TWENTY-TWO (22) 3/4" DIAMETER GRADE 8 BOLTS. A PLANETARY DRIVE GEAR BOX, POWERED BY A HYDRAULIC MOTOR, SHALL PROVIDE PRECISION ROTATION CONTROL THROUGHOUT 360 DEGREES OF ROTATION. A SPRING-APPLIED, HYDRAULICALLY-RELEASED DISC TYPE BRAKE SHALL BE FURNISHED TO PROVIDE POSITIVE BRAKING OF THE TURNTABLE ASSEMBLY AGAINST REACTIONARY FORCES SUCH AS WATER FLOW AND GRAVITY.

THE TURNTABLE ROTATION BEARING SHALL BE ACCESSIBLE FOR LUBRICATION AND RE-TORQUING OF BOLTS.

4.43 ROTATION LIMITING SYSTEM

AN AERIAL LADDER ROTATION LIMITING SYSTEM SHALL BE PROVIDED TO NOTIFY AND PREVENT THE OPERATOR FROM ROTATING THE AERIAL LADDER INTO A RESTRICTED POSITION DUE TO A "SHORT-SET" OUTRIGGER CONFIGURATION. THE SYSTEM SHALL ENABLE THE OPERATOR TO PLACE THE AERIAL LADDER IN A 180 DEGREE ROTATION TO THE OPPOSITE SIDE OF THE APPARATUS THAN THAT OF THE "SHORT-SET" OUTRIGGERS ONLY. INDICATOR LIGHTS SHALL BE PROVIDED ON THE TURNTABLE CONTROL CONSOLE TO INDICATE OUTRIGGER NOT DEPLOYED STATUS.

IN ORDER TO ROTATE THE AERIAL LADDER WITH A OUTRIGGER "SHORT-SET", THE AERIAL INTERLOCK OVERRIDE CONTROL MOMENTARY SWITCH LOCATED IN THE TURNTABLE CONTROL CONSOLE SHALL REQUIRE TO BE CONTINUOUSLY ACTIVATED WHILE ROTATION OF THE AERIAL IS IN PROCESS. THE SYSTEM SHALL BE CAPABLE OF ROTATING THE LADDER SLIGHTLY PAST THE CENTERLINE OF THE APPARATUS ON THE "SHORT-SET" SIDE TO ENABLE BEDDING OF THE LADDER WITHIN THE TRAVEL SUPPORT STRUCTURE WITHOUT SYSTEM CUTOUT.

4.44 EXTENSION/RETRACTION SYSTEM

A FULL HYDRAULIC POWERED EXTENSION AND RETRACTION SYSTEM OF THE LADDER SHALL BE PROVIDED THROUGH DUAL HYDRAULIC CYLINDERS AND CABLES, EACH CAPABLE OF OPERATING THE LADDER IN THE EVENT OF FAILURE OF ONE OF THE SYSTEMS.

THE EXTENSION CYLINDERS SHALL HAVE A 3-3/4" INTERNAL DIAMETER (BORE) WITH 1-1/2" DIAMETER DOUBLE ROD STROKE. THE EXTENSION/RETRACTION CYLINDERS SHALL BE EQUIPPED WITH INTEGRAL (ON THE CYLINDER) HOLDING VALVES TO PREVENT THE UNIT FROM FALLING SHOULD THE CHARGE LINES BE SEVERED AT ANY POINT WITHIN THE HYDRAULIC SYSTEM.

THE EXTENSION CYLINDERS SHALL BE PROVIDED WITH BOTH ROD AND PISTON "HYDRAULIC CUSHIONS." THE CUSHIONS SHALL SERVE TO DECELERATE THE CYLINDER NEAR THE END OF ITS STROKE RESULTING IN A SMOOTH STOP AT FULL CYLINDER STROKE. EACH DOUBLE ROD CYLINDER SHALL BE INSTALLED WITH BOTH ROD ENDS ATTACHED TO THE BASE SECTION, PERMITING THE CYLINDER BARREL TO TRAVEL FORE AND AFT THROUGH THE LENGTH OF THE BASE SECTION. THE EXTENSION CYLINDERS SHALL BE SO DESIGNED THAT THE CYLINDER RODS ARE IN TENSION AT ALL TIMES THUS ELIMINATING THE POSSIBILITY OF BENDING OR BUCKLING OF THE CYLINDER RODS.

CYLINDERS IN EXCESS OF 25 FEET WITH THE ROD EXTENDED, OR THAT REQUIRE THE ATTACHMENT OF THE ROD TO THE MID SECTION, SHALL NOT BE DESIRABLE FOR TWO (2) REASONS THAT ARE NOT CONSISTENT WITH THE LEVEL OF QUALITY DESIRED BY THE PURCHASER:

1. ROD ATTACHMENT TO THE MID SECTION REQUIRES THAT THE LOWER RUNG RAIL CANNOT BE SEALED FROM THE ATMOSPHERE AND THEREFORE LONG-TERM CORROSION CANNOT BE ADEQUATELY CONTROLLED.

2. THE CYLINDER SHALL BE SUBJECTED TO THE BUCKLING FORCES CAUSED BY NORMAL LADDER DEFLECTION.

CABLES ATTACHED TO THE BASE AND MID LADDER SECTIONS SHALL BE ROUTED OVER SHEAVE WHEELS ON THE BASE SECTION AND CYLINDER BARREL. THIS CABLING ARRANGEMENT SHALL ACT AS A STROKE MULTIPLIER TO PROVIDE FULL-POWER LADDER EXTENSION AND RETRACTION. EXTENSION OF THE LADDER SECTIONS SHALL BE ACCOMPLISHED BY THE MOVEMENT OF THE CYLINDER BARREL TOWARD THE TURNTABLE END OF THE BASE SECTION, THUS PROVIDING BETTER WEIGHT DISTRIBUTION WHEN THE LADDER IS EXTENDED.

RETRACTION OF THE LADDER SECTIONS SHALL BE ACCOMPLISHED BY MOVEMENT OF THE BARREL TOWARD THE OUTBOARD END OF THE BASE SECTION, THUS PROVIDING BETTER WEIGHT DISTRIBUTION BETWEEN FRONT AND REAR AXLES OF THE APPARATUS WHEN STOWED IN THE TRAVEL POSITION.

THE EXTENSION/RETRACTION CABLES SHALL HAVE A MINIMUM SAFETY FACTOR OF 5:1 AND SHALL BE OF THE FOLLOWING DIAMETERS: INNER MID SECTION: 9/16" / OUTER MID SECTION: 3/8" / FLY SECTION: 1/4"

4.45 LADDER SLIDE MECHANISM

ALL LADDER SLIDE PADS SHALL CONSIST OF ULTRA HIGH MOLECULAR WEIGHT (UHMW) SYNTHETIC MATERIAL WITH A SLIDING COEFFICIENT OF FRICTION OF 0.05. SLIDE PADS SHALL BE USED ON BOTH UPPER AND LOWER BEARING SURFACES AND TO CONTROL SIDE SWAY OF THE SECTIONS.

4.46 EXTENSION INDICATOR

THE BASE SECTION HANDRAILS SHALL BE PROVIDED WITH RED SCOTCH-LITE REFLECTIVE STRIPING AND NUMBERS TO INDICATE THE EXTENSION OF THE AERIAL DEVICE. THE STRIPES AND NUMBERS SHALL BE SPACED TO INDICATE EACH 10 FEET OF AERIAL EXTENSION BEYOND THE FULLY RETRACTED POSITION. AN ADDITIONAL STRIPE SHALL BE PROVIDED BETWEEN THE NUMBERED STRIPES TO INDICATE EACH 5 FEET OF AERIAL EXTENSION.

4.47 HYDRAULIC SYSTEM

THE HYDRAULIC SYSTEM SHALL PROVIDE POWER IN AS EFFICIENT A MANNER AS POSSIBLE. THE SYSTEM SHALL USE A PISTON TYPE LOAD SENSING PUMP AND SHALL BE CAPABLE OF OPERATING UNDER ANY RATED PLATFORM LOAD CONDITION AND AERIAL POSITION AT NORMAL ENGINE IDLE (SLOW IDLE) OR GOVERNOR CONTROLLED FAST IDLE. THE PISTON PUMP SHALL BE CAPABLE OF GENERATING SUFFICIENT FLOWS TO ALLOW MULTIPLE FUNCTION OPERATION WITHOUT SIGNIFICANT LOSS OF SPEED.

FOR SIZE AND WEIGHT CONSIDERATIONS, A 40 GALLON (MAXIMUM) OIL RESERVOIR SHALL BE INSTALLED. THE RESERVOIR SHALL BE EQUIPPED WITH A GATED DRAIN LINE; AND A GATED SUCTION LINES SHALL BE PROVIDED BETWEEN THE OIL RESERVOIR AND THE HYDRAULIC PUMP. THE RESERVOIR SHALL HAVE A MAGNETIC DRAIN PLUG, AN OIL LEVEL INDICATOR DIP STICK LOCATED IN THE TOP OF THE RESERVOIR, REMOVABLE LID ASSEMBLY, AND AN EASILY ACCESSIBLE FILL CAP.

THE SYSTEM SHALL BE EQUIPPED WITH BOTH A PRESSURE AND A RETURN LINE FILTER OF NO GREATER THAN 10 MICRON IN MESH SIZE. FILTERS SHALL BE EQUIPPED WITH EASILY VISIBLE DIRT ALARMS. BOTH FILTERS SHALL BE PROTECTED BY BYPASS CIRCUITS TO PROTECT THE SYSTEM FROM EXTREME CONTAMINATION CAUSED BY THE BREAKDOWN OF A NEGLECTED FILTER AND SUBSEQUENT RELEASE OF PREVIOUSLY TRAPPED PARTICLES INTO THE SYSTEM.

THE HYDRAULIC SYSTEM CYLINDERS SHALL BE SIZED AND RATED IN ACCORDANCE WITH PREVIOUSLY DESCRIBED STRUCTURAL SAFETY FACTORS. THE SYSTEM SHALL NOT BE DEPENDENT UPON AN AUXILIARY COOLER TO CONTROL SYSTEM TEMPERATURE.

ALL HYDRAULIC HOSES AND STEEL LINES USED IN THE SYSTEM SHALL HAVE 4:1 SAFETY FACTOR BASED UPON BURST PRESSURE. HOSES SHALL BE OF THE STEEL BRAIDED, RUBBER COVERED TYPE AND SHALL BE PROPERLY SIZED TO REDUCE HEAT BUILDUP DURING PROLONGED PERIODS OF OPERATION.

THE SYSTEM SHALL BE CAPABLE OF GENERATING FULL RATED FLOW CAPACITIES AT NO MORE THAN 1500 RPM. EACH FUNCTION SHALL BE PROTECTED BY A SYSTEM RELIEF VALVE AND/OR INDIVIDUAL CIRCUIT RELIEF VALVES, PRESET AT THE FACTORY. MAXIMUM PRESET SYSTEM PRESSURE SHALL BE 2750 PSI.

A THREE-FUNCTION HYDRAULIC PROPORTIONAL VALVE BANK SHALL CONTROL LADDER FUNCTIONS. THE VALVE SHALL BE LOCATED IN THE TURNTABLE WITH DIRECT LINKAGE CONTROLS. THREE (3) AERIAL CONTROL ACTUATORS SHALL BE LOCATED IN THE AERIAL CONTROL STATION TO PROVIDE "RAISE/LOWER"; "EXTENSION/RETRACTION" AND "SWING LEFT/RIGHT" FUNCTIONS.

THE HYDRAULIC SYSTEM SHALL BE CAPABLE OF SIMULTANEOUS OUTRIGGER FUNCTIONS OR SIMULTANEOUS AERIAL FUNCTIONS.

4.48 COMBINATION HYDRAULIC, WATER AND ELECTRIC SWIVEL

HYDRAULIC POWER TO THE TURNTABLE HYDRAULIC CIRCUITS SHALL BE PROVIDED THROUGH A THREE-PORT, HIGH PRESSURE HYDRAULIC SWIVEL PERMITTING 360 DEGREES CONTINUOUS ROTATION OF THE TURNTABLE.

WATER SHALL BE TRANSFERRED TO THE AERIAL WATERWAY BY MEANS OF A 4" INTERNAL DIAMETER WATER SWIVEL, PERMITTING 360 DEGREE CONTINUOUS ROTATION.

ELECTRIC POWER TO THE TURNTABLE ELECTRIC CIRCUITS SHALL BE COMPRISED OF A MINIMUM OF TWENTY-SIX (26) RING COLLECTOR ASSEMBLY, PERMITTING 360 DEGREE CONTINUOUS ROTATION OF THE TURNTABLE.

4.49 12 VOLT EMERGENCY HYDRAULIC SYSTEM

THE APPARATUS SHALL BE EQUIPPED WITH A 12 VOLT EMERGENCY HYDRAULIC POWER SYSTEM. THE EMERGENCY SYSTEM SHALL BE ELECTRICALLY DRIVEN FROM THE TRUCK BATTERIES AND SHALL BE CAPABLE OF LIMITED LADDER FUNCTIONS TO STOW THE LADDER AND OUTRIGGERS IN CASE OF PRIMARY HYDRAULIC PUMP FAILURE.

TWO (2) SPRING LOADED SWITCHES SHALL BE PROVIDED, ONE (1) ON EACH SIDE OUTRIGGER CONTROL STATION, TO ACTIVATE THE EMERGENCY POWER UNIT.

4.50 POWER TAKE-OFF (PTO)

THE APPARATUS SHALL BE EQUIPPED WITH A "HOT-SHIFT" PTO DRIVEN BY THE CHASSIS DRIVE TRAIN. A RED INDICATOR LIGHT SHALL BE LOCATED IN THE CAB NEXT TO THE PTO SWITCH TO SHOW WHEN THE PTO IS ENGAGED.

THE PTO SHALL ONLY ENGAGE WITH THE CHASSIS SPRING BRAKE SET AND THE TRANSMISSION IN NEUTRAL (OR DRIVE IF THE FIRE PUMP IS ENGAGED) TO PREVENT UNINTENTIONAL MOVEMENT OF THE CHASSIS DURING HYDRAULIC SYSTEM OPERATION.

FOR THE SAFETY OF PERSONNEL AND EQUIPMENT, NO EXCEPTIONS SHALL BE ALLOWED TO THIS NEUTRAL SAFETY SYSTEM.

4.51 TURNTABLE TREADPLATE

A STEEL TUBING SUPPORT STRUCTURE SHALL BE WELDED TO THE TURNTABLE BEARING PLATE, TO SUPPORT THE TURNTABLE TREADPLATE.

A 83" DIAMETER ALUMINUM TREADPLATE SHALL BE FURNISHED AROUND THE TURNTABLE WELDMENT. THE TREADPLATE SHALL BE FURNISHED WITH A 1-1/2" LIP AROUND THE COMPLETE OUTER EDGE. AN ALUMINUM TREADPLATE ACCESS STEP SHALL BE PROVIDED AT THE HEEL OF THE LADDER.

4.52 SAFETY RAILING - TURNTABLE

FORTY-TWO INCH (42") HIGH SAFETY RAILING SHALL BE PROVIDED AT THE SIDES AND REAR OF THE TURNTABLE. THE SAFETY RAILING SHALL BE CONSTRUCTED OF 1-1/4" DIAMETER HEAVY DUTY BRUSHED STAINLESS STEEL TUBING WITH DEEPLY SERRATED RUBBER SHEATHS. BRACKETS SHALL BE POLISHED STAINLESS STEEL TYPE. A VINYL COVERED SAFETY CHAIN SHALL BE PROVIDED ACROSS EACH CORNER OPENING WITH CHROME PLATED SNAP STYLE CLIPS.

4.53 CRADLE ALIGNMENT INDICATORS

ALUMINUM ARROWS WITH RED SCOTCH-LITE COATING SHALL BE PROVIDED ON THE TURNTABLE SURFACE, AND ON THE APPARATUS BODY TO INDICATE THE ALIGNMENT OF THE AERIAL LADDER WITH THE LADDER TRAVEL CRADLE. THE INDICATORS SHALL BE SUITABLY ILLUMINATED FOR NIGHT TIME OPERATION WITH ARROW MODEL #437-08-332 CHROME HOODED LIGHT.

4.54 AERIAL CONTROL STATION - TURNTABLE CONSOLE

AN AERIAL CONTROL CONSOLE SHALL BE LOCATED ON THE LEFT SIDE OF THE TURNTABLE, SUCH THAT THE OPERATOR CAN EASILY OBSERVE THE TIP OF THE AERIAL DEVICE WHILE OPERATING THE CONTROLS. THE FOLLOWING FEATURES SHALL BE PROVIDED, CLEARLY IDENTIFIED AND SUITABLY ILLUMINATED FOR EASE OF OPERATION.

DEADMAN FOOT SWITCH: A SWITCH TO SAFEGUARD AGAINST ACCIDENTAL MOVEMENT OF THE AERIAL LADDER. THE AERIAL LADDER FUNCTION CONTROLLERS SHALL REMAIN INACTIVE WHILE THE FOOT SWITCH IS NOT DEPRESSED.

LADDER FUNCTION CONTROLLERS: THREE (3) FUNCTION CONTROLLERS LOCATED ON THE CONTROL PANEL TO PROVIDE ELEVATION, EXTENSION, AND ROTATION OPERATIONAL CONTROL OF THE AERIAL DEVICE. THESE CONTROLS SHALL BE ARRANGED TO PERMIT THE OPERATOR TO REGULATE THE SPEED OF THESE OPERATIONS WITHIN THE SAFE LIMITS AS DETERMINED BY THE MANUFACTURER.

FAST IDLE SWITCH: A TOGGLE SWITCH LOCATED ON THE CONTROL PANEL TO ACTIVATE THE ENGINE FAST IDLE.

LOAD CHART: THE MANUFACTURER'S LOAD CHART, INSTALLED WITHIN VIEW FROM THE OPERATOR'S CONSOLE AND PROPERLY ILLUMINATED FOR EASY REFERENCE BY THE OPERATOR. THE LOAD CHART SHALL INDICATE THE MANUFACTURER'S RECOMMENDED SAFE AERIAL LOADING AND CAPACITY WEIGHTS AT ALL ANGLES OF ELEVATION AND ALL EXTENSIONS OF THE LADDER.

ELEVATION ANGLE INDICATOR: A BUBBLE-TYPE INDICATOR MOUNTED IN CLEAR VIEW OF THE OPERATOR TO INDICATE THE AERIAL DEVICE'S ANGLE OF ELEVATION.

RUNG ALIGNMENT INDICATOR: A LIGHT LOCATED ON THE CONTROL PANEL TO INDICATE THAT AERIAL LADDER RUNGS ARE PROPERLY ALIGNED FOR SAFE CLIMBING.

OUTRIGGER "NOT DEPLOYED" WARNING LIGHT: A RED INDICATOR LIGHT SHALL BE PROVIDED ON THE TURNTABLE CONSOLE THAT SHALL BE ILLUMINATED WHILE THE OUTRIGGERS ARE NOT IN A LOAD SUPPORTING POSITION. THIS LIGHT SHALL TURN OFF ONCE THE OUTRIGGERS ARE PROPERLY LOCKED INPOSITION.

HYDRAULIC OIL PRESSURE GAUGE: A 5000 PSI HYDRAULIC OIL PRESSURE GAUGE SHALL BE PROVIDED AND INSTALLED TO INDICATE THE OVERALL PRESSURE OF THE HYDRAULIC SYSTEM.

A HINGED ALUMINUM TREADPLATE COVER SHALL BE PROVIDED FOR THE T/T CONTROL CONSOLE.

4.55 OUTRIGGER CONTROL

TWO (2) ILLUMINATED OUTRIGGER CONTROL STATIONS SHALL BE PROVIDED, ONE (1) EACH SIDE OF THE APPARATUS, BETWEEN THE OUTRIGGERS AND THE WATERWAY INLET AREA..

FOR SAFETY, EASE OF DEPLOYMENT AND OPERATIONAL SPEED, THE OUTRIGGER CONTROLS SHALL BE OF THE HYDRAULIC PROPORTIONAL TYPE WITH MANUAL INTERLOCK OVERRIDES IMMEDIATELY ACCESSIBLE. THE OPERATOR SHALL DEPLOY EACH OUTRIGGER FROM ITS CORRESPONDING SIDE OF THE APPARATUS. AND TO ENSURE SAFE DEPLOYMENT AT ALL TIMES, THE CONTROLS SHALL NOT BE OBSTRUCTED IN ANY WAY WHICH WOULD LIMIT OPERATOR VISIBILITY OF THE OUTRIGGER IN OPERATION.

EACH OUTRIGGER SHALL BE INDEPENDENTLY CONTROLLED IN BOTH IN/OUT AND UP/DOWN MODES TO ALLOW VEHICLE SET-UP IN RESTRICTED AREAS OR ON UNEVEN TERRAIN. HOWEVER, IT SHALL NOT BE POSSIBLE TO LOWER THE JACKS UNLESS ALL OUTRIGGER BEAMS HAVE BEEN FULLY EXTENDED OR THE OPERATOR ACTUATES THE MOMENTARY OVERRIDE SWITCH TO ALLOW DISCRETIONARY PLACEMENT OF AN OUTRIGGER BEAM.

THE FOLLOWING FEATURES SHALL BE PROVIDED AT EACH CONTROL STATION, CLEARLY IDENTIFIED AND SUITABLY ILLUMINATED FOR EASE OF OPERATION: FAST IDLE SWITCH (EACH SIDE), MOMENTARY SAFETY SWITCH, OUTRIGGER CONTROL HANDLES, "OUTRIGGER DEPLOYED" INDICATORS AND EMERGENCY POWER UNIT SWITCH (EPU).

4.56 AERIAL ELECTRICAL SYSTEM

ELECTRICAL POWER FOR THE AERIAL DEVICE SHALL BE DRAWN FROM THE CHASSIS ELECTRICAL SYSTEM AND ROUTED THROUGH MAJOR SEGREGATED CIRCUITS AND INTO AN ELECTRIC COLLECTOR RING ASSEMBLY. THE CIRCUITS SHALL PROVIDE POWER FOR THE AERIAL DEVICE CONTROLS, INDICATORS, AND INTERLOCKS; OTHER CIRCUITS SHALL POWER AUXILIARY EQUIPMENT SUCH AS LIGHTS, INTERCOM, ETC.

THE ELECTRIC COLLECTOR RING ASSEMBLY SHALL PROVIDE POWER FOR ELECTRICAL GROUND, LADDER CONTROL FUNCTIONS, 12 AND 120 VOLT SYSTEMS. THE COLLECTOR RINGS SHALL BE ENCLOSED IN A SEALED, WEATHERPROOF HOUSING TO PREVENT CORROSION.

ALL AERIAL DEVICE WIRING SHALL BE MULTI-CONDUCTOR, COPPER 16 GAUGE (MINIMUM), COLOR-CODED, WITH THERMOSETTING CROSS-LINKED POLYETHYLENE INSULATION. ALL AERIAL DEVICE WIRING SHALL BE IN PRE-ENGINEERED HARNESSES WITH EACH CIRCUIT IDENTIFIED BY NUMBER AND COLOR CODE. HARNESS CONNECTIONS SHALL BE THROUGH LOCKING, WEATHERPROOF, GUIDED PIN CONNECTORS.

4.57 ENGINE START SWITCH

A MOMENTARY SWITCH SHALL BE LOCATED ON THE TURNTABLE CONTROL CONSOLE TO REMOTELY START THE CHASSIS ENGINE.

4.58 ENGINE STOP SWITCH

A MOMENTARY SWITCH SHALL BE LOCATED ON THE TURNTABLE CONTROL CONSOLE TO REMOTELY STOP THE CHASSIS ENGINE.

4.59 ENGINE, FAST IDLE ACTUATOR

A FAST IDLE ACTUATOR SYSTEM SHALL BE PROVIDED TO RAISE THE ENGINE RPM TO A PRE-SET LEVEL FOR PROPER AERIAL OPERATION. FOR THE SAFETY OF PERSONNEL AND EQUIPMENT, THE FAST IDLE SYSTEM SHALL NOT ACTIVATE UNLESS THE INTERLOCK SYSTEMS

HAVE BEEN APPLIED, THE CHASSIS SPRING BRAKE IS SET, AND THE TRANSMISSION IS IN NEUTRAL (OR DRIVE IF THE FIRE PUMP IS ENGAGED). NO EXCEPTIONS SHALL BE ACCEPTABLE TO THIS SYSTEM. THE AERIAL DEVICE SHALL NOT BE DEPENDENT UPON THE FAST IDLE CIRCUIT TO PERFORM ANY RATED TASK.

4.60 AERIAL HOUR METER

AN HOUR METER SHALL BE INSTALLED AND WIRED TO THE AERIAL PTO TO RECORD HOURS OF HYDRAULIC PUMP OPERATION. THE HOUR METER SHALL AID IN SCHEDULING PREVENTATIVE MAINTENANCE AS OUTLINED IN THE OPERATOR'S MANUAL. HOUR METER TO BE LOCATED ON GAUGE PANEL BEHIND PUMP PANEL.

4.61 AUDIBLE LOAD ALARM WITH GAUGE

AN AUDIBLE ALARM WITH COLOR CODED GAUGE AND WITH A DB LEVEL NO LESS THAN 90 SHALL BE PROVIDED AT THE TURNTABLE CONTROL CONSOLE TO ALERT THE OPERATOR SHOULD THE LOAD LIMITATIONS OF THE LADDER BE EXCEEDED.

THE ALARM SHALL ONLY NOTIFY THE OPERATOR OF THE CONDITION BUT IN NO WAY RESTRICT THE FURTHER OPERATION OF THE LADDER. THE GAUGE SHALL INDICATE THE LOAD ON THE AERIAL LADDER AND PROVIDE A CONTINUOUS READ-OUT OF THE LOAD RELATIVE TO THE RATED CAPACITY OF THE AERIAL LADDER.

4.62 TURNTABLE WORK LIGHTS

FOUR (4) 12 VOLT WORK LIGHTS SHALL BE INSTALLED ON THE REAR STEP OF THE TURNTABLE TO ILLUMINATE THE TURNTABLE TREADPLATE AREA.

4.63 OUTRIGGER LIGHTS

TWO (2) 7" DIAMETER, DOUBLE-FACED, RED, FLASHING LIGHTS SHALL BE MOUNTED ON THE INNER VERTICAL SURFACE OF THE OUTER JACK BOX STRUCTURE BELOW THE HORIZONTAL BEAM.

TWO (2) 2" DIAMETER, WHELEN PAR 16 LED WHITE, GROUND ILLUMINATION LIGHTS SHALL BE LOCATED BENEATH THE OUTRIGGER BEAMS TO ILLUMINATE THE GROUND AREA FOR NIGHT OPERATION.

ALL OUTRIGGER LIGHTS SHALL BE ACTIVATED BY THE "LADDER POWER" SWITCH IN THE CAB TO ELIMINATE THE NEED TO ACTIVATE ADDITIONAL SWITCHES BEFORE STARTING AERIAL OPERATIONS.

4.64 COMMUNICATION SYSTEM

AN ATKINSON TWO-WAY COMMUNICATION SYSTEM SHALL BE FURNISHED BETWEEN THE TIP OF THE FLY SECTION AND THE TURNTABLE CONTROL STATION. THE COMMUNICATION CONTROL BOX, WHICH INCLUDES "TALK" AND "LISTEN" VOLUME CONTROLS AND A "PUSH TO TALK"

BUTTON, SHALL BE LOCATED AT THE TURNTABLE CONTROL CONSOLE. A "HANDS-OFF" SPEAKER WHICH REQUIRES NO OPERATOR ATTENTION SHALL BE LOCATED AT THE TIP OF THE FLY SECTION.

4.65 AERIAL SPOT/FLOODLIGHTS

TWO (2) COLLINS FX-12 SPOT/FLOODLIGHTS SHALL BE MOUNTED AT THE REAR OF THE BASE LADDER SECTION, ONE (1) ON EACH HANDRAIL. THE SPOT/FLOODLIGHTS SHALL BE CAPABLE OF SWIVELING A 180 DEGREE ARC TO DIRECT LIGHT UP THE INSIDE OR OUTSIDE OF THE LADDER WALKWAY.

THE LIGHTS SHALL BE 12 VOLT, 6" DIAMETER, WITH 100 WATT/55 WATT HALOGEN BULBS AND "SPOT/OFF/FLOOD" SWITCHES ON EACH LIGHT. EACH LIGHT SHALL BE FURNISHED WITH A RUBBER RING SURROUNDING THE REFLECTOR AS A SHOCK ABSORBING BUMPER.

THE LIGHTS SHALL BE MOUNTED BELOW HANDRAIL HEIGHT SO AS NOT TO INCREASE OVERALL HEIGHT OF THE VEHICLE.

4.66 FLY SECTION WARNING LIGHT

ONE (1) WHELEN UL12 SELF-CONTAINED UTILITY LIGHTWITH BLUE LENS SHALL BE INSTALLED AT THE TIP OF THE AERIAL LADDER, LEFT SIDE. THE LIGHT SHALL PROVIDE A MEANS OF INDICATING WHERE THE LADDER TIP IS LOCATED DURING THE NIGHT AND HEAVY SMOKE OPERATIONS. THE LIGHT SHALL BE CONTROLLED BY A SWITCH ON THE TURNTABLE CONTROL CONSOLE.

4.67 120 VOLT CIRCUIT TO LADDER TIP

ONE (1) 20 AMP ELECTRICAL CIRCUIT UTILIZING 12 GAUGE 3 CONDUCTOR ELECTRIC CABLE SHALL BE PROVIDED TO THE TIP OF THE LADDER. THE CIRCUIT SHALL BE WIRED FROM AN ENCLOSURE BELOW THE TURNTABLE THROUGH THE COLLECTOR RING ASSEMBLY.

ONE (1) NEMA L5-15 THREE-PRONG, TWIST LOCK RECEPTACLE WITH AN ENVIRONMENTAL COVER SHALL BE PROVIDED ON THE RIGHT SIDE AT THE LADDER TIP.

4.68 QUARTZ LIGHTS AT LADDER TIP

TWO (2) 120 VOLT, KWIK-RAZE 650 WATT MAGNAFIRE 3000 QUARTZ LIGHTS SHALL BE MOUNTED AT THE TIP OF THE FLY SECTION, ONE (1) ON EACH SIDE OF THE LADDER. THE LIGHT SHALL BE DIRECTLY WIRED TO THE 120 VOLT SYSTEM. AN "ON/OFF" SWITCH SHALL BE PROVIDED ON THE TURNTABLE CONSOLE. ONE (1) SINGLE 20 AMP CIRCUIT IS PROVIDED FOR ALL 120 VOLT FUNCTIONS INCLUDING LIGHTS.

4.69 WATERWAY INLETS

THE AERIAL WATERWAY SHALL BE CAPABLE OF BEING SUPPLIED BY AN EXTERNAL WATER SOURCE WITH TWO (2) INTAKES, ONE (1) EACH SIDE OF THE APPARATUS ON THE GOOSENECK

AREA. FOUR INCH (4") BLACK IRON WATERWAY PIPING SHALL BE PROVIDED TO THE WATER SWIVEL BENEATH THE TURNTABLE.

A 1-1/2" DRAIN VALVE SHALL BE PROVIDED BENEATH THE TURNTABLE WITH CONTROL LOCATED ON THE LEFT SIDE OF THE GOOSENECK AREA.

A 4" NPT-F X 4" NST-M CHROME PLATED ADAPTER WITH SCREEN SHALL BE PROVIDED ON EACH WATERWAY EXTERIOR INLET. A 4" NST CHROME PLATED BLIND CAP SHALL BE PROVIDE ON EACH INLET ADAPTER.

4.70 ROTATION SWIVEL

WATER SHALL BE TRANSFERRED TO THE AERIAL WATERWAY BY MEANS OF A 4" DIA. WATER SWIVEL WHICH IS PART OF THE COMBINATION HYDRAULIC, WATER, ELECTRIC SWIVEL.

4.71 HEEL PIN SWIVEL

A SWIVEL ELBOW LOCATED AT THE HEEL PINS OF THE LADDER SHALL PERMIT WATER TOWER OPERATION THROUGHOUT THE AERIAL DEVICE'S FULL RANGE OF ELEVATION.

4.72 WATER SYSTEM FRICTION LOSS

THE AERIAL LADDER AND ITS WATERWAY SYSTEM SHALL BE CAPABLE OF FLOWING 1000 GPM AT 100 PSI NOZZLE PRESSURE AT FULL ELEVATION AND EXTENSION. THE FRICTION LOSS (TOTAL SYSTEM LOSS LESS HEAD LOSS) SHALL NOT EXCEED 100 PSI AT 1000 GPM FLOW WITH THE LADDER AT FULL HORIZONTAL EXTENSION. THE PRESSURE READING FOR FRICTION LOSS MEASUREMENT SHALL BE TAKEN AT THE BASE OF THE MONITOR AND AT A POINT BELOW THE WATERWAY SWIVEL.

4.73 TELESCOPIC WATERWAY

A SINGLE ANODIZED ALUMINUM TELESCOPIC WATERWAY SHALL BE PROVIDED, MOUNTED BENEATH THE CENTER OF THE AERIAL LADDER. THE TELESCOPIC WATERWAY SHALL CONSIST OF A 5" BASE SECTION TUBE, 4-1/2" INNER MID SECTION TUBE, 4" OUTER MID SECTION TUBE AND 3-1/2" FLY SECTION TUBE.

4.74 REMOTE CONTROLLED MONITOR

AN ELECTRICALLY CONTROLLED AKRON MASTER STREAM MODEL #3578 MONITOR SHALL BE LOCATED AT THE TIP OF THE FLY SECTION. THE ELECTRICAL LINE TO THE NOZZLE SHALL BE EQUIPPED WITH A DISCONNECT PLUG TO PERMIT QUICK CHANGE OVER TO STRAIGHT BORE TIPS.

ELEVATION SHALL BE FROM PARALLEL TO THE LADDER TO 135 DEGREES BELOW PARALLEL. HORIZONTAL SWEEP SHALL BE 180 DEGREES (90 DEGREES TO EITHER SIDE OF MONITOR CENTERLINE). STREAM PATTERN SHALL BE FROM STRAIGHT TO FOG. THE ENTIRE WATER

SYSTEM SHALL BE CAPABLE OF DELIVERING UP TO 1,000 GALLONS PER MINUTE AT ANY ANGLE OF ELEVATION, UP TO FULL EXTENSION AT 90 DEGREES TO THE CENTERLINE OF THE LADDER.

A 3-1/2" NST (FEMALE) X 2-1/2" NST (MALE) ADAPTER SHALL BE INSTALLED ON THE MONITOR FOR THE NOZZLE ASSEMBLY.

4.75 ELECTRIC NOZZLE

AN AKRON "AKROMATIC 1250" #5077 2.5" ELECTRICALLY CONTROLLED MASTER STREAM NOZZLE SHALL BE INSTALLED ON THE ELECTRICALLY CONTROLLED DECK GUN SPECIFIED. THE NOZZLE SHALL HAVE A LOW PRESSURE (80 PSI) AUTOMATIC FLOW MECHANISM TO MAINTAIN CONSTANT PRESSURE THROUGH THE FLOW RANGE.

4.76 MONITOR FUNCTION SWITCHES

FUNCTION SWITCHES SHALL BE PROVIDED ON THE TURNTABLE CONTROL CONSOLE AND THE MONITOR TO REMOTELY CONTROL THE ELECTRONIC MONITOR SPECIFIED.

4.77 RETRACTABLE MONITOR - AUTOMATIC CONNECTOR

THE WATERWAY AND MONITOR SHALL HAVE A RETRACTABLE FEATURE TO ALLOW IT TO BECOME DISCONNECTED FROM THE TIP OF THE FLY SECTION AND RECONNECTED TO THE NEXT LOWER LADDER SECTION OF THE AERIAL LADDER.

THE REMOTE CONTROL MONITOR SHALL BE CAPABLE OF BEING OPERATED FROM EITHER SECTION. THE ELECTRICAL CIRCUIT FOR THE MONITOR SHALL BE AUTOMATICALLY CONNECTED TO THE SECTION WHICH IT IS PINNED ON. SYSTEMS WHICH ONLY ALLOW THE OPERATION OF THE MONITOR FROM ONE POSITION, OR REQUIRE A PLUG TO BE SWITCHED BETWEEN THE SECTIONS SHALL NOT BE ACCEPTABLE. DUE TO ICE BUILD-UP, A CABLE REEL SHALL NOT BE PROVIDED FOR TRANSFERRING POWER BETWEEN THE SECTIONS.

THIS SHALL ELIMINATE ANY INTERFERENCE CAUSED BY THE WATER PIPE AND MONITOR DURING RESCUE OPERATIONS. THE WATERWAY AND MONITOR SHALL HAVE A POSITIVE LATCHING SYSTEM WHEN SECURED EITHER TO THE TIP OF THE FLY SECTION OR NEXT LOWER SECTION OF THE AERIAL LADDER. THE AERIAL LADDER SHALL BE CAPABLE OF FULL EXTENSION AND OPERATION WHEN THE WATERWAY IS CONNECTED TO EITHER SECTION OF THE LADDER.

4.78 FLY SECTION PRECONNECT

ONE (1) 2-1/2" NST GATED PRECONNECT SHALL BE LOCATED AT THE REAR OF MONITOR. THE PRECONNECT SHALL BE TAPPED FROM THE FLY SECTION WATERWAY DIRECTLY TO THE REAR OF THE MONITOR. THE PRECONNECT SHALL BE DIRECTED FORWARD BY USE OF 90 DEGREE ELBOW. A 3-1/2" HANDWHEEL CONTROLLED BUTTERFLY VALVE SHALL BE INSTALLED BETWEEN

THE END OF THE WATERWAY AND THE MONITOR. THE BUTTERFLY VALVE SHALL PERMIT THE MONITOR TO BE SHUT OFF THUS ENABLING UTILIZATION OF THE PRECONNECT.

THE OUTLET SHALL BE PROVIDED WITH A 2-1/2" NST X 1-1/2" REDUCER ADAPTER AND 1-1/2" CAP AND CHAIN.

4.79 WATERWAY RELIEF VALVE

A 2-1/2" PRESET PRESSURE RELIEF VALVE SHALL BE INSTALLED IN THE AERIAL WATERWAY PIPING SYSTEM. THE RELIEF VALVE SHALL BE CAPABLE OF PROTECTING THE WATERWAY SYSTEM BY RELIEVING PRESSURE THROUGH THE DUMPING OF WATER TO THE GROUND.

4.80 FLOWMETER (TURNTABLE)

A CLASS 1 FLOWMINDER SHALL BE INSTALLED ON THE TURNTABLE CONTROL CONSOLE TO PROVIDE A VISUAL DISPLAY OF THE LADDER WATER SYSTEM FLOW (GPM).

4.81 MOUNTING FOR AXE IN FLY SECTION

ONE (1) MOUNTING BRACKET SHALL BE PROVIDED ON THE INSIDE OF THE HANDRAIL ON THE LEFT SIDE OF THE FLY SECTION FOR AN AXE.

4.82 MOUNTING FOR RUBBISH HOOK IN FLY SECTION

MOUNTING BRACKETS SHALL BE PROVIDED ON THE INSIDE OF THE HANDRAIL ON THE LEFT SIDE OF THE FLY SECTION FOR ONE (1) RUBBISH HOOK.

4.83 MOUNTING FOR ROOF LADDER IN FLY SECTION

MOUNTING BRACKETS SHALL BE PROVIDED ON THE INSIDE OF THE HANDRAIL ON THE RIGHT SIDE OF THE FLY SECTION FOR A SPECIAL WIDTH ROOF LADDER.

4.84 CHAIN SAW SCABBARD

A CHAIN SAW SCABBARD SHALL BE MOUNTED ON THE INNER RIGHT SIDE OF THE LADDER FLY SECTION. THE SCABBARD SHALL BE CONSTRUCTED FROM WELDED ALUMINUM PLATES. THE CHAIN SAW MODEL AND DIMENSIONS SHALL FURNISHED AT THE PRE-CONSTRUCTION MEETING TO INSURE A PROPER FIT OF THE CHAIN SAW BEING USED BY THE FIRE DEPARTMENT.

4.85 SPECIAL TOOLS

THE FOLLOWING SPECIAL TOOLS SHALL BE PROVIDED FOR RETORQUING OF SPECIFIED BOLTS AS RECOMMENDED BY THE MANUFACTURER OF THE AERIAL DEVICE: EXTENSIONS, ADAPTERS, AND SOCKETS (AS REQUIRED), HYDRAULIC OIL TEST KIT, CUSTOM HYDRAULIC TEST/AIR BLEEDER KIT, TWO (2) TUBES OF SPECIFIED AERIAL LUBE, ONE (1) HIGH PRESSURE FILTER ELEMENT AND ONE (1) RETURN FILTER ELEMENT.

4.86 PAINTING - AERIAL DEVICE

BEFORE ANY PAINTING, ALL WELDMENTS SUCH AS THE OUTRIGGER BEAMS, TORQUE BOX, TURNTABLE, AND LADDER SECTIONS SHALL BE SHOTPEENED TO WORK-HARDEN AND STRESS RELIEVE THE EXTERIOR SURFACE OF ALL WELDMENTS AND TO ENSURE REMOVAL OF ANY SURFACE IMPERFECTIONS TO ENSURE SUPERIOR PAINT ADHESION TO THE METAL.

THE ENTIRE PAINTING SYSTEM SHALL UTILIZE A SINGLE MANUFACTURER'S PAINT FOR COMPATIBILITY BETWEEN PRIMERS AND FINISHED COATS. ALL PAINTING SHALL BE DONE IN ATMOSPHERE CONTROLLED SPRAY BOOTHS. ALL SEAMS BETWEEN ADJOINING PIECES THAT ARE NOT CONTINUOUSLY WELDED SHALL BE CAULKED TO INHIBIT CORROSION.

BEFORE ASSEMBLY, IN PREPARATION FOR FINAL PAINTING, THE OUTRIGGER BEAMS, TORQUE BOX, TURNTABLE AND LADDER SECTIONS SHALL BE THOROUGHLY CLEANED, CONFORMING TO GOOD PAINTING PRACTICES. THE WELDMENTS SHALL THEN BE PRIMED WITH EPOXY PRIMER.

THE AERIAL LADDER SECTIONS SHALL THEN BE COATED WITH A POLYURETHANE PRIMER SEALER. AFTER WHICH, THEY SHALL BE SPRAYED WITH THREE (3) COATS OF PPG POLYURETHANE FLEET WHITE PAINT.

THE TORQUE BOX AND OUTRIGGER BEAMS SHALL BE PAINTED WITH ENAMEL PAINT, ALLOWING EASY TOUCH-UP AFTER EXTENDED USE. THE TORQUE BOX SHALL BE SPRAYED BLACK ENAMEL AND THE OUTRIGGER BEAMS SILVER ENAMEL.

4.87 SCOTCH-LITE OUTRIGGER BEAM STRIPING

EACH OUTRIGGER BEAM ASSEMBLY SHALL BE STRIPED WITH SCOTCH-LITE REFLECTIVE MATERIAL. THE STRIPES SHALL BE APPLIED TO PROVIDE A SAFE APPEARANCE WHEN THE BEAMS ARE EXTENDED. THE COLOR OF THE STRIPES SHALL BE RED/WHITE, AND THE WIDTH OF EACH STRIPE SHALL BE TWO INCHES (2").

4.88 OPERATOR INSTRUCTIONS, CAUTION, AND WARNING SIGNS

THE MANUFACTURER SHALL SUPPLY AND AFFIX VARIOUS OPERATOR INSTRUCTION, CAUTION, AND WARNING SIGNS TO THE FRONT, SIDES, REAR AND INSIDE OF THE APPARATUS. THE WARNING SIGNS SHALL MEET THE GENERAL GUIDELINES OF ANSI Z35.1 (SPECIFICATION FOR ACCIDENT PREVENT SIGNS).

4.89 ON-SITE MAINTENANCE & OPERATIONAL TRAINING PROGRAM

THE SUCCESSFUL BIDDER SHALL PROVIDE AN ON-SITE PROGRAM FOR TRAINING OF FIRE DEPARTMENT PERSONNEL. THIS PROGRAM SHALL BE DESIGNED TO ASSURE COMPLETE UNDERSTANDING OF ALL ASPECTS OF THE AERIAL DEVICE IN THE OPERATING ENVIRONMENT. AFTER THE UNIT HAS BEEN ACCEPTED, THE SUCCESSFUL BIDDER SHALL SUPPLY A FACTORY TRAINED, FIELD SERVICE TECHNICIAN FOR THREE (3) DAYS.

THE TRAINING PROGRAM SHALL BE DESIGNED TO INSTRUCT THE INDIVIDUAL WHO HAS NEVER UTILIZED AN AERIAL DEVICE OF THIS TYPE BEFORE. THE INDIVIDUAL WILL BE THOROUGHLY TAUGHT THE OPERATING SYSTEMS OF THE AERIAL DEVICE, INCLUDING EMERGENCY OPERATION. INTRODUCTORY SERVICE SKILLS UTILIZING THE VEHICLE SHALL ALSO BE TAUGHT.

4.90 TRAINING PROGRAM

TO INSTRUCT FIRE DEPARTMENT PERSONNEL IN THE OPERATION, PREVENTATIVE MAINTENANCE AND CARE OF THE AERIAL DEVICE, THIS TRAINING PROGRAM SHALL BE ORIENTED TOWARDS A HANDS-ON APPROACH UTILIZING THE NEW APPARATUS.

1. REVIEW PERSONNEL TRAINING LEVEL AND DETERMINE SPECIFIC TRAINING REQUIREMENTS.

2. EXPLAIN OPERATIONS TO THE ENTIRE AERIAL DEVICE. EACH PARTICIPANT SHALL ACTUALLY USE THE AERIAL AND BE TAUGHT THE NECESSARY STEPS FOR SAFE OPERATION.

3. TROUBLESHOOTING WILL BE EMPHASIZED AND REINFORCED CONTINUALLY THROUGHOUT THE TRAINING PERIOD.

4. PREVENTATIVE MAINTENANCE PROCEDURES SHALL BE SET UP AND DEFINITE SCHEDULES DEVELOPED TO ASSURE PROPER MAINTENANCE OF THE AERIAL DEVICE.

5. INSTRUCTION IN THE USE OF TOOLS AND HOW TO REPLACE MINOR ASSEMBLIES, AS APPLICABLE. EQUALLY IMPORTANT IN THIS TRAINING WILL BE WHEN TO CALL APPROPRIATE PERSONNEL FOR ASSISTANCE.

6. HOW TO ORDER PARTS THROUGH THE LOCAL SERVICE CENTER BY UTILIZING PARTS MANUAL.

4.91 SERVICE

DUE TO THE IMPORTANCE OF KEEPING THIS VITAL PIECE OF FIREFIGHTING APPARATUS IN SERVICE WITH A MINIMUM OF DOWN TIME, THE MANUFACTURER OF THE AERIAL DEVICE SHALL MAINTAIN A NETWORK OF SERVICE CENTERS WITH FACTORY-TRAINED PERSONNEL. THE MANUFACTURER OF THE AERIAL DEVICE SHALL ALSO HAVE A SEPARATE FACILITY FOR SERVICE OF UNITS SO AS NOT TO CONFLICT WITH PRODUCTION OPERATIONS. THE MANUFACTURER OF THE AERIAL DEVICE SHALL ALSO HAVE FACTORY PERSONNEL ON 24-HOUR CALL FOR EMERGENCIES.

4.92 MANUALS - AERIAL DEVICE

THE FOLLOWING MANUALS PERTAINING TO THE AERIAL DEVICE SHALL PROVIDED AT TIME OF APPARATUS DELIVERY.

A) TWO (2) SETS OF OPERATOR'S MANUALS WHICH SHALL INCLUDE THE FOLLOWING SECTIONS: OPERATING INSTRUCTIONS, TROUBLESHOOTING GUIDE, BOLT RE-TORQUING CRITERIA,

MAINTENANCE INSTRUCTIONS, VENDOR SERVICE MANUALS, AND HOURLY MAINTENANCE CHECK LISTS.

B) TWO (2) SETS OF PARTS MANUALS WHICH SHALL INCLUDE EXPLODED VIEW DRAWINGS WITH INDIVIDUAL PARTS IDENTIFIED BY PART NUMBER AND COMMON DESCRIPTIONS.

C) TWO (2) SETS OF WIRING DIAGRAMS FOR THE AERIAL DEVICE SHALL BE PROVIDED WITH THE COMPLETED APPARATUS.

D) TWO (2) SETS OF HYDRAULIC DIAGRAMS FOR THE AERIAL DEVICE SHALL BE PROVIDED WITH THE COMPLETED APPARATUS.

4.93 DETAILING

THE APPARATUS SHALL BE THOROUGHLY WASHED AND DETAILED IN PREPARATION FOR FINAL ACCEPTANCE.

4.94 DELIVERY

THE APPARATUS SHALL BE DELIVERED BY MANUFACTURER TO THE LOCATION DESIGNATED BY THE PURCHASER.

4.95 AXLES WARRANTY

A THREE (3) YEAR PARTS AND LABOR WARRANTY SHALL BE PROVIDED ON THE DRIVE AXLE(S) (DIFFERENTIAL ASSEMBLIES, AXLE SHAFTS AND AXLE HOUSINGS) AND FOR THE STEERING AXLE (BEAM, SPINDLES, KINGPINS AND KINGPIN BEARINGS AND STEERING ARM).

4.96 SUSPENSION WARRANTY

THE STEEL SPRINGS, SPRING HANGER BRACKETS, AXLE MOUNTING BRACKETS, U-BOLTS, SHACKLES/PINS AND TORQUE RODS (LESS BUSHINGS) SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEARS.

4.97 FRAME RAILS WARRANTY

A LIFETIME WARRANTY SHALL BE PROVIDED FOR CHASSIS FRAME RAILS DUE TO BREAKING OR CRACKING. ANY MODIFICATION TO THE RAIL OR BODY APPLICATION MUST RECEIVE WRITTEN PERMISSION FROM THE BUILDER BEFORE IT IS PERFORMED TO VALIDATE WARRANTY.

1.62 TRANSMISSION WARRANTY

THE ALLISON 4000 EVS SERIES TRANSMISSION SHALL BE WARRANTED FOR A PERIOD OF FIVE (5) YEARS WITH UNLIMITED MILEAGE. PARTS AND LABOR SHALL BE INCLUDED IN THE WARRANTY.

THE TRANSMISSION MUST BE FILLED WITH TRANSYND SYNTHETIC FLUID OR APPROVED EQUAL.

2.34 FIRE PUMP WARRANTY

THE FIRE PUMP SHALL BE COVERED BY A MINIMUM TWO (2) YEAR WARRANTY.

1.44 ENGINE WARRANTY

THE DETROIT DIESEL ENGINE SHALL BE WARRANTED FOR A PERIOD OF FIVE (5) YEARS OR 100,000 MILES, WHICHEVER OCCURS FIRST.

1.2 CAB WARRANTY

THE CAB SHALL BE WARRANTED FOR A PERIOD OF TEN (10) YEARS. WARRANTY CONDITIONS MAY APPLY AND SHALL BE LISTED IN THE DETAILED WARRANTY DOCUMENT THAT SHALL BE PROVIDED UPON REQUEST.

4.98 WARNING EQUIPMENT WARRANTY

A ONE (1) YEAR WARRANTY SHALL BE PROVIDED FOR APPARATUS MANUFACTURER BRANDED COMPONENTS, INCLUDING ELECTRIC HORNS, STROBE LIGHTS, CONTOUR LIGHTBAR, 100 WATT SIREN AND SPEAKER(S) (EXCEPT CONSUMABLE PARTS) AND ELECTRIC LOAD MANAGEMENT SYSTEM.

4.99 BODY WARRANTY

THE BODY SHALL HAVE A TWO (2) YEAR, UNLIMITED DISTANCE WARRANTY PROVIDED UPON DELIVERY AND ACCEPTANCE. UNLESS EXCLUDED ELSEWHERE IN THE WARRANTY OR DESCRIBED AS HAVING LONGER TIME AND DISTANCE LIMITATIONS, THE FOLLOWING COMPONENTS OF THE BODY ARE COVERED UNDER THE BASIC BODY WARRANTY:

FIRE PUMP PANEL AND CONTROLS INCLUDING - CONTROL HANDLES AND LINKAGES, GAUGES, INDICATORS AND SENDING UNITS, REMOTE THROTTLE CONTROLS, WATER TANK LEVEL INDICATORS AND SENDER(S).

FOAM SYSTEM AND CONTROLS INCLUDING - GAUGES, INDICATORS AND SENDING UNITS, CONTROLS, FOAM TANK LEVEL INDICATORS AND SENDER(S).

FOAM SYSTEM PLUMBING INCLUDING - MANIFOLD(S), INLET AND DISCHARGE VALVES, DRAIN VALVES, DISCHARGE AND SUCTION PLUMBING.

BODY EMERGENCY LIGHTING AND CONTROLS INCLUDING - ROTATORS, STROBE TUBES AND STROBE POWER SUPPLIES, DIRECTIONAL LIGHT BARS AND OTHER VISUAL WARNING DEVICES INSTALLED AT TIME OF BUILD.

ROLL-UP COMPARTMENT DOORS INCLUDING - SHUTTERS (SLATS), SWITCHES, TRACKS AND LATCHES.

BODY TRIM INCLUDING - FENDERS, RUB RAILS, GRABHANDLES.

BODY LIGHTING AND CONTROLS INCLUDING - MARKER LIGHTS, SCENE LIGHTS, GROUND AND PANEL LIGHTS, STOP AND TAIL LIGHTS.

BODY ELECTRICAL SYSTEMS INCLUDING - WIRING, CIRCUIT BREAKERS AND DISTRIBUTION PANEL(S).

HYDRAULIC GROUND LADDER RACK AND CONTROLS INCLUDING - SWITCHES, MOTOR(S), CYLINDERS, VALVES AND HOSES.

4.100 BODY RUST THROUGH WARRANTY

THE BODY SHALL BE WARRANTED FOR TEN (10) YEARS TO BE FREE OF CRACKS RESULTING FROM STRESS AND RUST THROUGH OF THE COMPONENT PANELS. WARRANTY DOES NOT APPLY TO STRESS CRACKS OR RUST THROUGH RESULTING FROM MISUSE, ACCIDENTS, OR ALTERATIONS.

4.101 PAINT WARRANTY

THE APPARATUS PAINT COATINGS SHALL BE WARRANTED BY THE APPARATUS MANUFACTURER (NOT A THIRD PARTY PAINT MANUFACTURER) FOR A PERIOD OF SEVEN (7) YEARS FROM DELIVERY AND ACCEPTANCE OF THE COMPLETE VEHICLE. THE WARRANTY SHALL INCLUDE ADHESION, PEELING, DELAMINATION, CRACKING, CLOUDING, OR LOSS OF GLOSS. PAINT CHIPPING AND SURFACE FRACTURING CAUSED BY AN OBJECT STRIKING THE PAINT SURFACES ARE NOT WARRANTABLE.

CAB UNDERSIDE AND DOORS SHALL BE RUSTPROOFED WITH A TEN (10) YEAR OR 100,000 MILE WARRANTY CERTIFICATE AGAINST PERFORATION ISSUED IN THE FIRE DEPARTMENT'S NAME.

4.102 WARRANTY-AERIAL DEVICE

THE AERIAL DEVICE MANUFACTURER SHALL GUARANTEE TO THE ORIGINAL PURCHASER TO REPAIR OR REPLACE ANY DEFLECTIVE STRUCTURAL COMPONENT RESULTING FROM FAULTY MATERIAL OR WORKMANSHIP FOR A PERIOD OF TWENTY (20) YEARS AFTER DELIVERY OF THE AERIAL DEVICE TO THE PURCHASER. THE WARRANTY SHALL COVER THE AERIAL LADDER WELDMENTS, OPENBASE, TORQUE BOX AND OUTRIGGER WELDMENTS.

TO ENSURE SOLE SOURCE RESPONSIBILITY OF THE AERIAL DEVICE, THE BIDDER SHALL CLEARLY STATE ITS INTENTION TO WARRANT THE AERIAL LADDER, OPEN BASE, TORQUEBOX AND OUTRIGGER WELDMENTS AS THESE INTEGRAL PARTS AND COMPONENTS OF THE AERIAL DEVICE.

4.103 WARRANTY - AERIAL DEVICE

THE MANUFACTURER OF THE AERIAL DEVICE SHALL GUARANTEE TO THE PURCHASER TO REPAIR OR REPLACE ANY DEFECTIVE OR PREMATURELY FAILED PARTS, RESULTING FROM FAULTY MATERIAL OR WORKMANSHIP, FOR A PERIOD OF THREE (3) YEARS AFTER DELIVERY OF THE AERIAL DEVICE TO THE PURCHASER.

4.104 TEN YEAR LIMITED WATERWAY WARRANTY

THERE SHALL BE A TEN (10) LIMITED WARRANTY COVERING THE WATERWAY BETWEEN THE WATERWAY SWIVEL AND THE MONITOR AT THE TIP, INCLUDING THE WATERWAY SEALS. THE WARRANTY SHALL BE EFFECTIVE FROM DATE OF DELIVERY AND SHALL REQUIRE NO SPECIAL MAINTENANCE AT THE SCENE OF THE FIRE OR SPECIAL PROCEDURES OTHER THAN FOLLOWING NORMAL PREVENTATIVE MAINTENANCE SCHEDULE.

4.105 SERVICE MANUALS

TWO (2) DETAILED SERVICE MANUALS, EACH COVERING THE SPECIFIC OPTIONS OF THE CHASSIS AS ORDERED, COMPLETE WITH TROUBLESHOOTING GUIDES IN EACH SECTION, SHALL BE DELIVERED WITH THE COMPLETED APPARATUS.

4.106 ELECTRICAL WIRING MANUAL

A MANUFACTURER'S MASTER WIRING MANUAL SHOWING ALL CIRCUITS, SWITCHES, RELAYS AND HARNESSES USED IN THE APPARATUS AS DELIVERED AS WELL AS OPTIONAL CIRCUITRY AND COMPONENTS WHICH MAY BE ADDED IN FUTURE VEHICLE MODIFICATIONS.

4.107 "AS BUILT" PARTS MANUALS

TWO (2) "AS BUILT" PARTS MANUALS, EACH COMPLETE WITH DETAILED BILLS OF MATERIAL, ASSEMBLIES, SUB-ASSEMBLIES, PIECE PARTS USED TO BUILD THE CHASSIS SHALL BE ORGANIZED SEQUENTIALLY SPECIFIC MODULES RELATING BACK TO THE BILLS OF MATERIAL. EACH REFERENCE PAGE SHALL CONTAIN THE SERIAL NUMBER OF THE CHASSIS, THE DATE THE REFERENCE PAGE WAS PRINTED, THE BILL OF MATERIAL DESCRIPTION AND THE PAGE NUMBER. ADDITIONALLY, EACH ILLUSTRATION SHALL HAVE A REFERENCE NUMBER AND EACH PART NUMBER SHALL IDENTIFY THE MANUFACTURING AND VENDOR PART NUMBER AS APPLICABLE.

4.108 ENGINE AND TRANSMISSION MANUALS

A SET OF TWO (2) ENGINE MANUFACTURER PRODUCED MANUALS, ONE (1) PARTS AND ONE (1) SERVICE REPAIR SHALL BE INCLUDED WITH THE VEHICLE DOCUMENTATION UPON DELIVERY. A

SET OF TWO (2) ALLISON TRANSMISSION PRODUCED MANUALS, ONE (1) SERVICE PARTS AND ONE (1) WORKSHOP REPAIR SHALL ALSO BE INCLUDED.

4.109 OPERATOR'S MAINTENANCE AND WARRANTY MANUALS

TWO (2) HIGHLY DETAILED AND COMPREHENSIVE MANUALS, EACH DEPICTING CHASSIS COMPONENT OPERATING PROCEDURES, MAINTENANCE REQUIREMENTS, MAINTENANCE INTERVALS AND PROCEDURES, WARRANTY REGISTRATION WITH THE MANUFACTURER, WARRANTY COVERAGES AND CLAIM PROCEDURES, SHALL BE PRESENTED AND REVIEWED WITH THE FIRE DEPARTMENT ACCEPTANCE AUTHORITY PRIOR TO VEHICLE ACCEPTANCE. THESE MANUALS SHALL BE DELIVERED WITH EACH VEHICLE.

4.110 LADDERS

ONE (1) DUO-SAFETY SERIES 900-A, 24' 2-SECTION ALUMINUM LADDER SHALL BE PROVIDED.

TWO (2) DUO-SAFETY SERIES 1200-A, 28' 2-SECTION ALUMINUM LADDER SHALL BE PROVIDED.

TWO (2) DUO-SAFETY SERIES 1225-A, 35' 3-SECTION ALUMINUM LADDER SHALL BE PROVIDED.

ONE (1) DUO-SAFETY SERIES 775-A, 12' ALUMINUM ROOF LADDER SHALL BE PROVIDED AND MOUNTED IN THE AERIAL FLY SECTION BRACKETS.

TWO (2) DUO-SAFETY SERIES 875-A, 16' ALUMINUM ROOF LADDERS SHALL BE PROVIDED.

ONE (1) DUO-SAFETY SERIES 300-A, 15' ALUMINUM COMBINATION LADDER SHALL BE PROVIDED.

ONE (1) DUO-SAFETY SERIES 585-A, 10' ALUMINUM FOLDING LADDER SHALL BE PROVIDED.

ONE (1) NUPLA SPD6, 6' FIBERGLASS HANDLE PIKE POLE SHALL BE PROVIDED.

ONE (1) NUPLA SPD8, 8' FIBERGLASS HANDLE PIKE POLE SHALL BE PROVIDED.

ONE (1) NUPLA SPD12, 12' FIBERGLASS HANDLE PIKE POLE SHALL BE PROVIDED.

TWO (2) NUPLA RH-6, 6' "D" HANDLE RUBBISH HOOKS SHALL BE PROVIDED.